# The psychology of greed

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# The Psychology of Greed

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# The Psychology of Greed

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# CHAPTER 1
# INTRODUCTION

> *One day a countryman going to the nest of his goose found there an egg all yellow and glittering. When he took it up it was as heavy as lead and he was going to throw it away, because he thought a trick had been played upon him. But he took it home on second thoughts, and soon found to his delight that it was an egg of pure gold. Every morning the same thing occurred, and he soon became rich by selling his eggs. As he grew rich he grew greedy; and thinking to get at once all the gold the goose could give, he killed it and opened it only to find, – nothing.*

The story above is one of Aesop's famous fables, "Killing the Goose That Laid the Golden Eggs," and is one of many stories that describes the occurrence of greed in everyday life and its detrimental consequences (Jacobs, 2002). Greed is omnipresent. Greedy characters play important roles in various cartoons (Scrooge McDuck is the greedy uncle of Donald Duck in Duck Tales and Mister Crabs is the greedy founder and owner of the Krusty Krab in SpongeBob). Greed is also center stage in numerous stories (e.g., "King Midas' Golden Touch", "A Christmas Carol") and movies (e.g., "Wall Street", "The Wolf of Wall Street").

Indeed, we encounter instances of greed on a daily basis. The media covers stories about big frauds and scandals that are supposedly caused by greed. An example is Bernie Madoff's Ponzi scheme (Sarna, 2010). Madoff defrauded thousands of investors and his Ponzi scheme cost billions of dollars. Also the Enron Scandal is often linked to the greed of its top executives. Enron was one of the most renowned American companies, until it went bankrupt in 2001, after the uncovering of a variety of illegal activities. A more recent example, is the tax evasion of hundreds of people, including (former) world leaders, business people, criminals, and football players brought to light by the Panama Papers (Trouw/FD, 2016). It seems that greed is an integral part of our capitalistic society and in particular in the financial markets.

But, also in our immediate surroundings we see greedy behavior. For example, that colleague that always complains about his salary, the kid that wants the biggest present possible, or the friend who always takes the first snack at a party

(and typically also the last one). Greedy behavior is also witnessed at the end of the season sales, when people sometimes seem to lose their mind while shopping and purchase much more than needed. More than once, Black Friday has led to crazy fights between people who wanted to purchase the same product. Finally, the eagerness with which consumers use coupons and respond to temporary discounts can also be seen as a manifestation of greed.

Maybe because of this omnipresence, much is said and written about greed and its potential causes and consequences. In that light it is remarkable that empirical research on this topic is scarce, not to say lacking (Wang & Murnighan, 2011).[1] In this dissertation I aim to partially fill this gap and report on several studies investigating what greed is and what greed does. More specifically, I investigated the causes and consequences of dispositional greed, that is, how individuals differ in how greedy they are and how these greedy dispositions influence behavior in a variety of domains (e.g., financial, ethical). However, before I present these findings, I will first give a brief overview of the existing literature. My review centers on the definitional issues with greed and further summarizes the little empirical research on greed. For more extensive reviews on the conceptual work on greed that also elaborate on the philosophical, economic, and religious aspects, I refer the reader to Wang and Murnighan (2011), Sutherland (2014), and Oka and Kuijt (2014).

## WHAT IS GREED?

So far I have talked about greed as if we all know and understand what this word refers to. However, the reality is that there are definitional problems with this construct. Let me first discuss the origin of the word, and next describe what these definitional issues are. I do not solve the issues in this first introductory chapter, but rather devote Chapter 2 completely to this. Most of the issues stem from the fact that what is written about greed is conceptual and not substantiated by empirical research. Still I believe that a better insight in these definitional

[1] Over the last couple of years scholars have gained more interest in greed, and as a result, several empirical studies investigating greed have been conducted since I started with this dissertation.

issues is a good starting point for understanding the importance of greed and provides valuable input for possible relationships with other constructs and behaviors.

The word 'greed' originally stems from the Old English word *græd* or *grædig*, meaning hungry, voracious, or eager to obtain (Online Etymology Dictionary, 2016). It has cognates in other Germanic languages, such as *gradag* in Old Saxon, *grådig* in Danish, *graðr* in Old Norse, and *gretig* in Dutch. In Dutch and German greed is usually called *hebzucht* or *habsucht*, a combination of "to have" (hebben/haben) and "sickness", "passion", or "addiction" (zucht/Sucht). Greed is thus an excessive or insatiable desire to have something. Although most people agree that greed encompasses a strong desire to have something, people do sometimes disagree on the specifics of greed.

## Greed: Material or non-material?

The first problem with defining greed is setting borders on how broad the construct of greed is. In other words, what makes people greedy or what are people greedy for? Although, virtually everyone agrees that people can be greedy for money or other material goods, debate exists on whether greed also applies to non-material goods. Sometimes, the distinction between *philargyria* (the love for money) and *pleonexia* (a general tendency to want more of everything) is made (Newhauser, 2000). Philargyria refers to the more traditional view of greed as a desire for money (avarice/cupidity), whereas pleonexia encompasses a broader view and can also include other excessive desires, such as being greedy for food (gluttony), sex (lust), power, success, etc. (Tickle, 2004).

To investigate what people are greedy for, I asked 163 participants ($M_{age}$ = 20.12, $SD$ = 1.85, 68.71% female) to describe a situation in which they felt greedy and coded the object of their desire (see Figure 1.1). This allowed me to obtain some insight into the frequency in which people feel greedy for money and other things. The results are interesting and informative for the discussion of whether greed also applies to non-material things. In most instances of greed (68%) participants' desire was material: they desired money (22%) or other

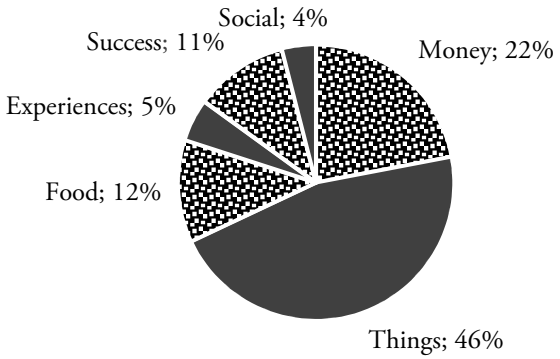


**Figure 1.1.** *Percentages of material and non-material desires.*

material things (clothes, books, etc.; 46%). But, there was a substantial amount of instances of greed (32%) in which participants desired something non-material. This ranged from desiring a cigarette or food, to wanting more free time, higher grades, or even love. This finding corroborates the idea that greed is indeed a more general desire for more of something, and does not only apply to money and material things.

In this dissertation I further elaborate on this discussion and show that people see greed as broader than just a desire for money or things (Chapter 2) and that greed is associated with more general desires, for example for food, sex, and friends (Chapter 3).

## Greed: Acquisition or retention?

Related to the types of desires greed encapsulates, another distinction can be made based on acquisition or retention focus. That is, sometimes greed is used to describe behavior that is focused at acquiring as many new resources as possible, whereas other times, it is used to describe behavior that aims at keeping as many resources one already has to him or herself. Although greed is most often defined as acquisition focused (Wachtel, 2003), sometimes the construct is also used to refer to retention. According to Hume (1741) there are two types of greed: avarice and miserliness. In other words, a greedy person can be someone

who wants to acquire as much as possible, or a greedy person can be stingy and does not want to lose what he already has. One of the most known examples of a person exhibiting greed as both acquisition and retention behavior is Ebenezer Scrooge, the focal character in 'A Christmas Carol' (Dickens, 1843). On the one hand, Scrooge works very hard to build up his wealth, but on the other hand, he exploits his clerk and refuses to give to charity, because he does not want to lose the money he already has.

This double definition of greed is also prevalent in everyday life, and people often use greed to describe behavior of people that are stingy or people that always want more. Moreover, research suggests that greedy people are indeed not only focused on acquiring more, but also on keeping what they already have. Krekels (2015) looked at greed as a retention motivation. In her research, greed was associated with increased loss aversion. Greedy people needed more than five times the amount of gain versus loss to participate in a gamble, whereas for less greedy individuals this ratio was a bit below four. In addition, greed was related to the endowment effect. Participants had the opportunity to buy a university branded pen. Psychological ownership was manipulated by letting one-third of the participants write with a different type of pen (no endowment), one third wrote with the exact pen they could buy (endowment), and one third wrote with an identical, but different pen (contagious endowment). In the endowment condition, where psychological ownership was high, greedy participants wanted to pay more to keep the pen, compared to participants is one of the other conditions. These studies indeed corroborate the idea that greed is more than just an acquisition motivation and that greedy people like to keep what they have. Although I do believe that both retention and acquisition motivations play a role in greedy behavior, I focus on greed as an acquisition motivation in this dissertation. I do this, because I think this latter motivation is more central to greed, which is also apparent from Chapter 2.

## Greed: Emotion or motivation?

A third issue is whether to conceptualize greed as an emotion or a motivation. Both emotions and motivations have a crucial role in determining human

behavior. Theoretically, one can argue that greed can be an emotion and a motivation. According to appraisal theory (e.g., Roseman, 1996) emotions are associated with specific patterns of appraisals related to emotion-eliciting events. These specific emotions then help people to deal with this situation by guiding their behavior (Zeelenberg & Pieters, 2006). For greed this means that the emotional experience of wanting something, or wanting more, will help people to reach their goals. The same event can elicit different emotions for different people, but the same pattern of appraisals will lead to the same emotion. Thus, although people will experience greed in different types of situations, the appraisal pattern associated with greed will always elicit greed.

So what would be the appraisal pattern of greed? We know that greed is associated with a strong desire to acquire or have something. The appraisal patterns eliciting greed will thus arise in situations in which people have a strong desire for a particular resource. Because people might differ strongly in the things they desire, there might be a broad range of events that will elicit greed. However, desire will not be enough to trigger greed, as greed is also insatiable. A second appraisal to elicit greed will thus have to involve frustration, as it can and will never be enough. Giving in to temptation and getting what one wants it usually associated with pleasure at the moment of the decision, but typically disappears quickly afterwards (Bazerman, Tenbrunsel, & Wade-Benzoni, 1998). Or to quote Mr. Spock: "After a time, you may find that *having* is not so pleasing a thing, after all, as *wanting*. It is not logical, but it is often true". People often lose the pleasure at the moment they attain something, and as a result, people have the chance to become greedy for something else, or something more. Greed could thus be operationalized as an emotion that arises when we are confronted with something that we desire but that we cannot (or is hard to) get.

Emotions are acute, temporarily, and are a response to a specific experience (Kleinginna & Kleinginna, 1981), which distinguishes them from more chronic affective and motivational personality traits. Greed can also be seen as a more stable motivation. Interestingly, motivations typically disappear as soon as a goal

is reached. However, for greed this does not seem to be the case. For greedy people the goal posts ever keep moving, resulting in a chronic urge to get more.

Greed seems to be a hybrid of emotional and motivational components. On the one hand, the right situational cues will temporarily elicit greed, but on the other hand, some people are generally more motivated by greed than others. In this dissertation I focus on these internal and individually rooted motives to want more. Although I believe that everyone will experience greed once in a while, I also believe that some people more easily or more often feel greedy. In Chapters 4 to 6 of this dissertation I discuss how several types of behavior are motivated by individual differences in greed.

## WHEN ARE PEOPLE GREEDY?

As mentioned before, the empirical literature on greed is scarce. Typically, studies investigating greed looked at how situational cues influence greedy behavior in economic and behavioral games. These studies usually investigated how different social motives play a role when people have to choose between rational selfish actions and cooperative collective actions. Two motives are typically used to explain defection (Coombs, 1973; Dawes, 1980): greed and fear. People are considered greedy when they expect that enough others will cooperate so they do not have to. In this case, people can thus decide to defect because they want a free ride. When people act out of fear, they defect because they think that others will not cooperate. In this case, people defect because they fear being gypped. Several studies have investigated the role of both motives and suggest that greed is a more important motive for defecting than fear (e.g., Rapoport & Eshed-Levy, 1989; Dawes, Orbell, Simmons, & Van de Kragt, 1986; Poppe & Utens, 1986).

Before I discuss these studies, it is important to note that these studies typically measure greed with a question such as "I wanted to enhance my outcomes". Though this is of course related to greed, it is hard to disentangle greed with other constructs such as general self-interest. Although I believe that this is not the best way to measure greed, I do believe that the results of these

studies give important indications about which situations will elevate greed. These studies have found a variety of situational cues that increase greedy behavior in social dilemmas. Research suggests that people behave greedier towards outgroups (Simpson, 2006; Van de Kragt, Orbell, & Dawes, 1983), when rewards are high (Dawes, 1980; Dawes et al., 1986), when there is little communication (Van de Kragt et al., 1983), and when they are part of a group (Murnighan, Kim, & Metzger, 1993; Cohen, Gunia, Kim-Jun, & Murnighan, 2009).

Other research suggests that exposure to economic principles leads to more favorable attitudes towards greed and enhances greedy behavior (Wang, Malhotra, & Murnighan, 2011). Students that majored in economics, or that had followed multiple economics courses, kept more money to themselves in a dictator game and had more favorable attitudes towards greed in general and one's own greedy behavior. Moreover, this research found that even people without a background in economics were more favorable towards greed after reading a short text about self-interest. Related to this is other research, in which participants in a calculative mindset (by doing a calculative task), kept more money to themselves (Wang, Zhong, & Murnighan, 2014). Another study found that people with a higher socioeconomic status had more favorable attitudes towards greed and were more likely to behave unethically (Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012).[2] People with low socioeconomic status became more unethical after they were exposed to the positive sides of greed. These studies suggest that being in an economic mindset that is focused on one's own interest, leads to greedier behavior.

In other studies, the effects of mortality and death on greedy behavior have been investigated. These studies typically look at mortality salience, the process of becoming aware that death is inevitable. Terror management theory posits that people try to cope with the anxiety of unavoidable death by holding on to cultural

[2] Others (Trautmann, Van de Kuilen, & Zeckhauser, 2013) failed to replicate Piff et al's findings that higher social class is associated to more unethical behavior. Although they did not look at attitudes towards greed in their research, it indicates that more research on this topic is necessary.

worldviews that give them meaning (Pyszczynski, Greenberg, & Solomon, 1997). For example, when people find the acquisition of wealth important, they are more likely to behave acquisitive when their mortality is salient. Kasser and Sheldon (2000) found that participants that were exposed to death had higher financial expectations for themselves fifteen years later. They expected that their overall worth would be higher and that they would be spending more on hedonic goods. In addition, participants with higher mortality salience consumed more in a harvesting game. Nonetheless, other studies found the opposing result that thinking about death decreases greed. Cozzolino, Sheldon, Schachtman, and Meyers (2009) found that people who have extrinsic values (focused on money, fame, etc.) became less greedy when they had a limited time perspective, that is, when they thought about being old and nearing the end of life. Other research suggests that the type of death awareness influences if people become more or less greedy (Cozzolino, Staples, Meyers, & Samboceti, 2004). When people think more generally about death, they become greedier and take more raffle tickets, whereas thinking more concrete about dying, and reflecting on life, decreases greed. Jonas, Sullivan, and Greenberg (2013) also looked at an explanation for these opposing results, and argue that whether people become more or less greedy depends on the norms in that particular situation. When there are prosocial norms people behave more generous, whereas proself norms lead to more greedy behavior. In sum, thinking about death influences how greedy people behave. Mortality salience makes people anxious, which leads them to behave in accordance with their worldview. If people value wealth, they are more likely to behave greedy. However, in some instances, thinking about death has the opposite result, for instance, people with a near death experience often become less greedy because they realize that there are more important things in life.

Taken together, there seem to be systematic situational factors that amplify and attenuate greed. People are more likely to behave greedy in situations of uncertainty, such as when they have to deal with outgroup members or if there is little communication. Also when the stakes are high, or when people are focused on the benefits of greed, they are more easily lured into greedy behavior. Thinking of death also influences people's greedy behavior, although the

direction depends on the concreteness of death. People become greedier when they think in a general sense about greed, whereas concrete thinking about greed, such as near death experiences, decreases greedy behavior.

## WHO ARE GREEDY?

The research discussed before has thus mainly focused on situational greed. However, I believe that, besides temporal experiences of greed, people also differ in their general tendency to be greedy. That is, I believe that some people are in general more motivated by greed than others. Many emotions or more general psychological motives can be experienced as both a state and a trait. For example, anger (Forgays, Forgays, & Spielberger, 1997), envy (Lange & Crusius, 2014), pride (Tracy & Robins, 2007), optimism (Kluemper, Little, & DeGroot, 2009), and happiness (Lucas & Donnellan, 2007), all have a trait and state component. Where previous research has mainly focused on situational cues influencing greedy behavior, I reveal in this dissertation that people differ in their general tendencies to be greedy. Although virtually all people are greedy sometimes, some are more likely to experience greed, and be motivated by greed, than others.

Until recently, there was no empirical research investigating individual differences in greed. Nevertheless, this topic has gained more attention over the last couple of years. In Chapter 3 I report on the construction and validation of the Dispositional Greed Scale (DGS). Parallel to that research and independent of it, several other scales have been developed that measure individual differences in greed. Both Krekels and Pandelaere (2015) as well as Mussel, Reiter, Osinsky, and Hewig (2015) constructed scales to measure greed as a personality characteristic. In addition, Veselka, Giammarco, and Vernon (2014) constructed the Vices and Virtues Scale (VAVS), in which greed is one of the vices. That four scales about the same topic have been developed in a short time span already signals that the topic of greed is a contemporary issue. In the Conclusions and Discussion section of this dissertation (Chapter 7) I elaborate on the similarities and differences between the DGS as presented in Chapter 3 and the other three scales.

## IS GREED GOOD OR BAD?

Gordon Gekko, the main fictional character of the movie Wall Street, coined the famous quote "greed is good". According to Gekko, greed is good because it drives progress and development. And indeed, from an economic perspective, greed is often seen as positive. The idea of *homo economicus* is central in economic theorizing. In economic theory, one of the assumptions is the axiom of greed, which posits that "If A contains more of one good than B, and at least as much as B of all other goods, A will be preferred over B" (Lea, Tarpy, & Webley, 1987, p. 109). Rational people should take as much as possible, as they should focus on maximizing their personal outcomes (Smith, 1776/1994). Interestingly, from this perspective, greed is not only beneficial for the greedy actor, but also for society as a whole. The idea behind this reasoning is that if people maximize their own outcomes, this also promotes activities that lead to economic growth (Fehr & Gintis, 2007; Williams, 2000). Thus, according to economic theory, greed is an important drive for economic growth and prosperity. These driving qualities of greed were also recognized by Ayn Rand (1964). Although she recognized the negative effects of greed, her philosophical viewpoint argues for rational selfishness and opposes altruism. People's acquisitive nature should be free of moral evaluations, she argues, as it is not only possible for humankind to live selfishly, it is even necessary. In sum, from an economic perspective, greed is often seen as positive, as behaving in one's own interest is thought to benefit everyone in the long run.

Also from an evolutionary perspective, greed is seen as a driving force for human behavior. From this perspective, the drive for survival and natural selection has led people to maximize their own outcomes (Friedman, 1953). Especially in times of scarcity, taking as much as possible is beneficial and increases the chances of survival (Cassill & Watkins, 2005; Robertson, 2001). This might explain why people that grew up in relative scarcity tend to be greedier (Krekels, 2015; Poluektova, Efremova, & Breugelmans, 2015). From an evolutionary point of view, greed leads thus to self-preservation, and hence, to survival.

Although the principles for the greed-is-good-perspective have been around for ages, these ideas have only become mainstream recently with the rise of the importance of economics as a science (Oka & Kuijt, 2014). Historically, greed has been condemned. According to Christians greed is 'the root of all evil', and in the Catholic Church it is one of the seven deadly sins (Tickle, 2004). Buddhism and Hinduism believe that it leads to bad karma and obstructs spiritual development (Nath, 1998; Sundararajan, 1989). Judaism and Islam deal with greed by obliging people to share their wealth with charities (Bloch, 1984; Oka & Kuijt, 2014). Most major religions thus teach that greed is negative and sinful.

This negative stance towards greed is shared by most philosophical traditions. Greek antiquity (e.g., Thucydides, Plato, Aristotle) believed that greed was inherent to human nature and warned for its immorality and irrationality. According to Thucydides greed led to human progress, but was also an important motive for people to start wars (Zagorin, 2009). According to Plato greed hurts both others and those who are greedy and eradicates happiness (Balot, 2001). Aristotle argued that greedy people do not know how to distinguish between needs and desires, and therefore do not know how to live life to the fullest (Wang & Murnighan, 2011). According to these Greek philosophers, greed is thus not only bad because it is immoral and hurts others, it also stands in the way of personal happiness thereby illustrating the irrational side of greed.

Also later philosophers and political theorists such as Thomas Hobbes and David Hume warned for the negative consequences of greed. Hobbes argued that greed leads to competition, war, and eventually to the destruction of mankind (Hueglin, 2008; Myers, 1983). Although Hume did see how greed could advance society, he shared the idea that unbridled greed had devastating consequences for society (Hume, 1739/2001).

There are thus both advocates and opponents of greed. Some argue that positive qualities of greed are that it leads to progress, development, and prosperity. In contrast, others argue that greed mostly hurts and leads to immoral behavior, destroys interpersonal relationships, and stands in the way of happiness.

Because I am mostly interested in the workings of greed, the question of whether it is good or bad is not of primary interest. However, in Chapters 4 to 6 I present data that reveals that greed indeed motivates positive as well as negative behavior, providing support for both sides of the argument.

## WHY IS IT IMPORTANT TO STUDY GREED?

As I mentioned before, greed is omnipresent. We are all witnesses and actors of greed on a regular basis. There are innocent acts of greed, such as taking the last cookie or going on a shopping spree, but there are also acts with more severe consequences, such as stealing or committing fraud. Greed influences us in different ways. It can motivate us, make us competitive, and help us to reach our goals. On the other hand, greed can also make us egoistic, neglecting other things that are important for us and others. Greed can thus help us move forward, but it can also help us forget what actually matters.

Given the fact that greed is an important motive for behavior, it is not surprising that greed plays an important role in both economic and moral theorizing. From an economic perspective, greed is often advocated as good as it drives economic progress and development (e.g., Greenfeld, 2001). Classical economic theory is based on the assumption that people should maximize their own outcomes. However, because unbridled greed often takes place at the expense of others, from a moral perspective greed is often seen as a sin or a vice (e.g., Tickle, 2004).

Also in the popular media, greed is a timely and popular topic. Especially after the late 2000's financial crisis, greed received much media attention and it is often argued that greed is the cause of the behavior of the bankers responsible for the crisis (Zandi, 2008). Nevertheless, we know very little about how greed actually drives and shapes human behavior. Although there is some empirical research on greed, it is still unclear what greed exactly is, and how it shapes people's behavior.

Most research on greed stems from the game theoretic literature (e.g., Dawes et al., 1986; Murnighan et al., 1993). In these studies greed is typically defined as a motive for people to defect and not cooperate with others. Although these

studies are insightful, they can usually not discriminate between greed and related constructs such as self-interest or actual need as they equate the behavior that could follow greed with the motive itself. The major other research line on greed stems from the terror management literature (e.g., Kasser & Sheldon, 2000; Cozzolino et al., 2004, 2009), where greed is treated as an outcome rather than as a motive causing other behavior. Although all this is important, these lines of research do not teach us more about how greed differs from related constructs and how greed influences people's behavior. In this dissertation the focus lies on how to define and conceptualize greed, and how individual differences in the motivation to be greedy shape people's behavior.

## THE CURRENT DISSERTATION

This dissertation consists of two parts. Figure 1.2 provides a schematic overview of the two parts and the corresponding five empirical chapters in this thesis. The first part of this dissertation aims at getting a better understanding of what greed is. In Chapter 2 I report a prototype analysis of greed that I conducted to get a better understanding of what people talk about when they talk about greed, and to come to an empirically-based definition of greed. Based on this definition I construct a scale to measure individual differences in greed (Chapter 3). In the second part, I investigate in three chapters the behavioral consequences of greed.

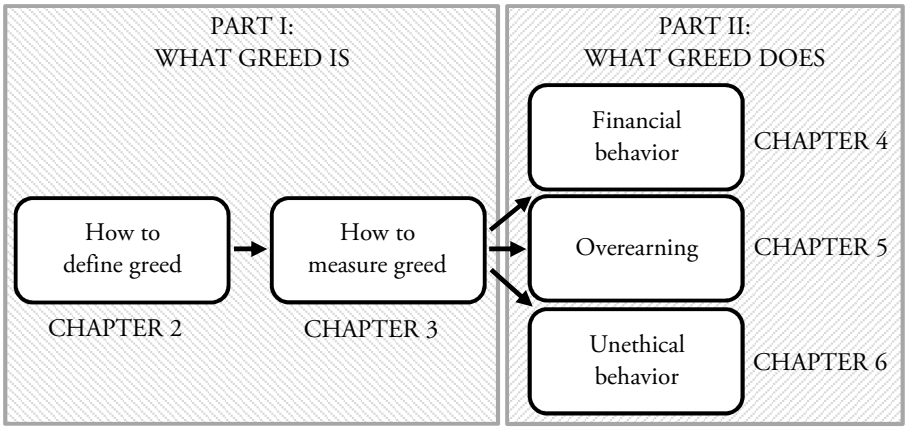


**Figure 1.2.** *Schematic overview of the empirical Chapters 2 to 6 of the dissertation.*

Please note that all chapters are written as unique articles that have been or will be published separately, and therefore can be read independently. As a result, there is some overlap between the different chapters, particularly in explaining the relevant constructs and the previous literature. Moreover, because the empirical chapters are all co-authored, they are all written in 'we' form (a footnote at the beginning of each chapter names all co-authors of that chapter). Because I am the sole author of the Introduction and Conclusions and Discussion chapters, and these reflect my own opinions and thoughts, I use 'I' in these chapters.

## Part I: What greed is…

### Chapter 2. Defining Greed

This chapter aims to get a better conceptualization of greed by using a prototype analysis. Such an analysis helps in providing more clear conceptualizations of 'fuzzy' psychological constructs. In Studies 2.1 and 2.2 I reveal which features people find important to describe greed. Features are categorized as being central or peripheral to greed. Studies 2.3 to 2.5 further validate the greed prototype and indicate that central features are indeed more important to describe greed than peripheral features. Based on this prototype analysis I conclude that greed is the desire to acquire more and dissatisfaction for never having enough.

### Chapter 3. Dispositional Greed

Chapter 3 reports on the development of the Dispositional Greed Scale (DGS). In Study 3.1 I use four samples to construct and validate the DGS. The DGS consists of seven items and reliably measures individual differences in greed. Dispositional greed is conceptually different from other constructs such as maximization, self-interest, envy, and materialism. Because of the high correlation between dispositional greed and materialism, Study 3.2 gives further evidence for the differences between the two constructs. Studies 3.3 to 3.5 show that the DGS predicts behavior in both ultimatum and dictator games, as well as a harvesting dilemma.

## Part II: What greed does…

### Chapter 4. Greed and Adolescent Financial Behavior

In this chapter I explore the relationship between dispositional greed and adolescent financial behavior. I construct a 3-item version of the DGS and show that individual differences in greed are associated with more income, more expenses, less savings, and more debt. Greed thus has both positive and negative consequences for financial behavior.

### Chapter 5. Enough is Never Enough: Greed, Work, and Overearning

This chapter investigates the relationship between dispositional greed and overearning. In Study 5.1 I show that greedy individuals are more prone to overearning, that is, earning beyond one's needs. In Study 5.2 I find that greedy people overearn more, because they like earning more, not because they like the work more. Replicating the findings of Study 5.1, Study 5.3 shows again that dispositional greed is associated with more overearning. Furthermore, this study finds that people that overearn feel more regret and are less satisfied with their outcomes. Finally, this study shows that even when people got the opportunity to learn from previous outcomes, dispositional greed is still associated with overearning at a second trial.

### Chapter 6. Greedy Bastards: Greed and Unethical Behavior

In this chapter I examine how greed is associated with unethical behavior. In Study 6.1 I find in three samples that greedy individuals have more positive attitudes towards transgressions and are more likely to transgress. In addition, this relationship is mediated by self-control. Study 6.2 further investigates the relationship between greed and unethical behavior and shows that greedy individuals are more likely to accept bribes. In Study 6.3 I further explore the role of self-control in this relationship. Greedy individuals are more likely to transgress because they experience higher desires, and therefore have less self-control to refrain themselves from transgressing.

### Chapter 7. Conclusions and Discussion

In the last chapter I integrate and discuss the findings from the empirical chapters. I give a summary of the findings of this dissertation and discuss the theoretical implications of these findings. Moreover, I place the findings in a broader theoretical framework and provide directions for further research.

# PART I: WHAT GREED IS…

# CHAPTER 2
## Defining Greed

*Although greed is both hailed as the motor of economic growth and blamed as the cause of economic crises, very little is known about its psychological underpinnings. Five studies explored lay conceptualizations of greed amongst US and Dutch participants using a prototype analysis. Study 2.1 identified features related to greed. Study 2.2 determined the importance of these features; the most important features were classified as central (e.g., self-interested, never satisfied), whereas less important features were classified as peripheral (e.g., ambition, addiction). Subsequently, we found that, compared to peripheral features, participants recalled central features better (Study 2.3), faster (Study 2.4), and these central features were more present in real-life episodes of greed (Study 2.5). These findings provide a better understanding of the elements that make up the experience of greed and provide insights into how greed can be manipulated and measured in future research.*

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*"Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit."*

– Gordon Gecko

*"There is a sufficiency in the world for man's need but not for man's greed."*

– Mahatma Gandhi

As the quotes above illustrate, people's opinions about greed range from very positive to very negative. Whereas some people acclaim the driving forces of greed that increase economic growth and development (e.g., Greenfeld, 2001), others condemn its immoral and exploitative qualities (e.g., Stigler, 1981). Despite the fact that greed is an important construct in economics and in moral reasoning and that many people such as journalists, pop-science writers, and novelists talk and write extensively about greed, empirical research on the topic is scarce. According to Wang and Murnighan (2011) the relative neglect of greed in contemporary research is partly due to the "enormous difficulties that surround the seemingly simple task of defining greed" (p. 282).

The aim of this research is to gain more insight into how people conceptualize greed. In order to achieve this goal we conducted an extensive prototype analysis. However, before describing the prototype analysis, we first review the existing literatures on greed. In doing this we build on and extend Wang and Murnighan's (2011) pioneering work. We next explain some theory behind prototype analysis and proceed with an overview of the five studies that we conducted.

## What is greed?

One way to get a better conception of greed is to look at the origin of the word. 'Greed' originates from the Old English term *græd* or *grædig* (with cognates in a variety of other Germanic languages; e.g., *gretig* in Dutch, *grådig* in Danish, and *gráðigr* in Old Scandinavian languages), meaning voracious or eager (Online Etymology Dictionary, 2013). Greed can thus be seen as an excessive desire or hunger. Definitions in leading dictionaries confirm this view;

greed is described as the "selfish and excessive desire for more of something (as money) than is needed" (Merriam-Webster Online Dictionary, 2013); "a strong desire for more wealth, possessions, power, etc. than a person needs" (Online Oxford Advanced Learner's Dictionary, 2013), and "when you want a lot more food, money, etc. than you need" (Online Cambridge Learner's Dictionary, 2013). As is apparent from all these definitions, greed refers to an inappeasable longing for not just money but also other goods and resources. Depending on the object of interest greed can manifest itself as avarice, cupidity, exceeding ambition, lust, or gluttony (Tickle, 2004). Thus, when people talk about greed they mean more than just an extreme desire for more money.

Besides the excessive desire that is fundamental to greed, the scientific literature often mentions the selfish nature of greed. Some even argue that greed is an extreme and immoral form of self-interest at the costs of others (Balot, 2001). In classical economic theory both self-interest and greed form key assumptions, as rational people should maximize their personal outcomes (Smith, 1776/1994). Most authors focusing on greed's economic consequences share this positive and productive view; greed and self-interest are for example seen as principal motivators for a flourishing economy (Fehr & Gintis, 2007; Williams, 2000). Greed is said to increase economic development because it motivates the creation of new products and the development of new industries, which in turn enhances wealth, employment, and well-being (Melleuish, 2009).

Another viewpoint is that greed is inherent to human nature and that all people are greedy to some extent. Some argue that being greedy is vital for human welfare (Greenfeld, 2001; Williams, 2000) and that it is an important evolutionary motive that promotes self-preservation (Robertson, 2001; Saad, 2007). People who are more predisposed to gain and hoard as many resources as possible are argued to be better off and thus have an evolutionary advantage (Cassill & Watkins, 2005).

While rational and evolutionary approaches to greed stress its productive and reproductive advantages, much else that is written about greed focuses on its negative characteristics. For example, despite the differences in major religious

traditions, they all seem to converge on the idea that greed is bad. Saint Paul states in the New Testament that "the love for money is the root of all evil". In Christianity greed is known as one of the seven cardinal sins that lead to eternal damnation. In fact, greed is sometimes even referred to as the mother of all sins (Tickle, 2004), with the other sins (anger, envy, gluttony, lust, pride, and sloth) stemming from greed. In Buddhism, greed is one of the three poisons that create bad karma (Nath, 1998). Other religions are equally outspoken about the negativity of greed (for Hinduism, see Sundararajan, 1989; for Islam, see Rafiabadi, 2003; and for Judaism, see Bloch, 1984).

In other writings, greed has been related to different forms of unethical and immoral behavior. It is argued that greed is a cause of war (Collier & Hoeffler, 2004), fraud (Smith, 2003), theft (Caudil, 1988), corruption (Rose-Ackerman, 1999), and deception (Cohen, Gunia, Kim-Jun, & Murnighan, 2009). Furthermore, greedy behavior often takes place at the expense of others. Greedy individuals in a society often benefit from the rest of the (less greedy) population that has to pay the price (Foldvary, 1998).

One reason for the negative stance towards greed may be its insatiability. To greedy people, enough is never enough. Greedy individuals find themselves permanently on a hedonic treadmill (Brickman & Campbell, 1971); they expect that they will be happier with more money (Easterlin, 2001), but as soon as they get more they adapt their desires and expectations and want even more (Diener, Suh, Lucas, & Smith, 1999; Keely, 2001). For greedy people, the goalposts ever keep moving.

Finally, greed has been proposed to have negative consequences for the greedy themselves. Lunt and Livingstone (1991) relate greed to financial debts, implying impatience in the greedy with respect to things they desire (Johnson, 2008). According to Papatheodorou, Rosselló, and Xiao (2010) it is greed that made bankers behave recklessly and risky, which in turn led to the financial crisis (Zandi, 2008). A classic example of the negative consequences of greed is the well-known Tragedy of the Commons (Hardin, 1968). Medieval herders in the UK could let their livestock graze on a common parcel of land besides on their

own, private parcel. There was a clear preference for herders to let their livestock graze on these commons. Though rational from an individual perspective, it led to overgrazing and the common ground becoming infertile and useless to all. According to Wilke (1991) these types of situations occur when greed wins it from the desire to be efficient and fair.

Thus, as a summary, much has been said about greed. Nonetheless, there appears to be considerable variation in, and hence lack of agreement on, the conceptualization of greed, both in the scientific literature (Wang & Murnighan, 2011) and in the way people generally talk about it. Because greed is such a broad and ill-defined concept, we believe that a prototype analysis about greed can be helpful here in order to get at the central characteristics of this important motivational construct.

## Greed and related constructs

As is apparent from the literature reviewed, greed is related to (and often confounded with) other constructs such as self-interest, materialism, and envy. Nevertheless, we think that they are distinct constructs. Below we explain why.

In the psychological literature greed is often, and mistakenly, used interchangeably with self-interest. In the rational economic model, agents are thought to be self-interested and to maximize their outcomes. Self-interest refers to the fact that rational agents only care about their own outcomes, and are indifferent concerning the outcomes of others. Greed is related to the assumption of maximization, which states that agents always prefer to have more rather than less of a good. We believe that greed is an exaggerated form of maximizing, in which people not simple prefer to have more, but are also frustrated by not having it. While it may be rational to strive for the maximum, striving for more than what is possible is not rational. Thus, when people are greedy, they can become so focused on what they want or desire that it leads to behavior that is not rational anymore.

Another construct used interchangeably with greed is materialism. In Belk's (1984) definition, greed is even one of the core elements of materialism.

Although materialistic people can indeed be greedy, greed is broader than just a desire for material possessions (Tickle, 2004). People can be greedy for food, power, or sex, which has nothing to do with materialism. Whereas materialists desire things because they signal success in life (Richins, 2004), greed can also be felt for things that do not signal success or status (e.g., being greedy for candy).

Lastly, we want to focus on the differences between greed and envy. Envy is experienced when people are not happy with their current state and it may induce a desire for products (Van de Ven, Zeelenberg, & Pieters, 2011a&b). However, we think the antecedents of envy and greed are different. People are envious because others are better off and they desire the same things those others have, whereas people are greedy because they just have an inappeasable desire for more (Maijala, Mannukka, & Nikkonen, 2000). Envy is thus driven by an external factor (wanting what others have), whereas greed is driven by internal motivations (wanting more).

## Why we can benefit from adopting a prototype approach

In science, good definitions are of vital importance. However, it is sometimes difficult to clearly describe the focal construct in a limited number of necessary or sufficient elements. When concepts have fuzzy boundaries, prototype analysis comes in handy (Fehr & Russell, 1984; Rosch, 1975; Shaver, Schwartz, Kirson, & O'Connor, 1987). In contrast to traditional dictionary definitions that identify a set of boundary conditions for a construct, a prototype analysis does not assume that all elements that are important for a construct are present at all times. Instead, it identifies a set of features that people see as representative to that construct. A common example to explain the need and benefits of prototype analysis is by demonstrating the impossibility to properly define the concept of a chair (see Shaver et al., 1987). A prototype of a chair, in contrast, is easily found: it is a piece of furniture that one can sit on with four legs and a backseat. Clearly, none of these features are strictly necessary to classify an object as a chair, nor are they able to discriminate between chairs and other objects in an absolute sense. We can also use other objects to sit on, some chairs have only one leg or three legs, and some chairs have armrests while others do not. Despite the variability

of what a chair looks like people are able to categorize objects as being more or less prototypical versions of a chair.

If even a simple object like a chair is so hard to describe, it is understandable that even more problems are encountered when describing complex constructs such as emotions. Therefore, we use a prototype approach to get a better idea of what greed is. With this approach laypeople are asked to list characteristics they think to be important to describe the construct under investigation. These characteristics are then evaluated and placed into larger sets of features by independent coders. The features that are identified as being most representative of a construct make up the prototype of the investigated construct.

In the past, prototype approaches have been fruitfully used to conceptualize many fuzzy concepts. They have been used to clarify the concepts of emotion (Shaver et al., 1987), modesty (Gregg, Hart, Sedikides, & Kumashiro, 2008), relationship quality (Hassebrauck, 1997), commitment (Fehr, 1988), forgiveness (Kearns & Fincham, 2004), and prayer (Lambert, Fincham, & Graham, 2011). This approach has also successfully been applied to specific emotional states such as gratitude (Lambert, Graham, & Fincham, 2009), love (Fehr, 1988; Fitness & Fletcher, 1993; Regan, Kocan, & Whitlock, 1998), hate, anger, jealousy (Fitness & Fletcher, 1993), and nostalgia (Hepper, Ritchie, Sedikides, & Wildschut, 2011). In the present research we follow this research tradition by applying a prototype analysis to the study of greed.

It is arguable that everything can be conceptualized as a prototype, but this by itself does not make prototype analysis a worthwhile or worthless pursuit. In the case of greed we think a prototype analysis is particularly useful; not because we want to show that greed has a prototype structure, but rather to find what that structure is. Given the disparities in the scarce scientific literature on greed and the important role greed is thought to play in daily life, we simply want to get a better understanding of what people see as important characteristics of greed. A prototype analysis can provide us with these insights because it gives us important information about the cognitive and emotional representations people have of greed (Shaver et al., 1987).

A prototype analysis can benefit us in three ways. First, it provides information about people's perception of greed, helping us to create a working definition of greed. Second, it provides insights about whether greed is good or bad (and in what situations). Third, it provides information for the further empirical study of greed, for example in scale construction. Thus, the analysis will give us insights in how, why, and when people feel and behave greedy and gives us important directions on how to manipulate and measure greed in future studies. It may enable us to more effectively grasp what greed is and what greed does.

## Overview of the current studies

The total analysis of greed consists of five studies. The goal of Study 2.1 was to determine which features are prototypical for greed. Study 2.2 served to classify each of the features of greed as central or peripheral. Studies 2.3 and 2.4 investigated differences in automatic information-processing of central and peripheral features. Finally, Study 2.5 examined the ecological validity of central versus peripheral features by examining the prototype of greed in the context of real-life events.

# STUDY 2.1

This study aims to provide a list of the features and characteristics that make up the experience of greed. Participants were asked to list as many exemplars of greed that they could think of, and these were later coded to extract the most common features of greed.

## Method

Students ($N$ = 195, 88.2% female, $M_{age}$ = 19.19, $SD$ = 2.46) participated in exchange for course credit. Participants had five minutes to list as many features of greed as they could think of.

## Results and discussion

Following the procedure used by other prototype analyses, we first divided participants' total responses into a number of distinct exemplars ($N$ = 1660; $M$ =

8.51, *SD* = 3.97, per person). Most exemplars were single items; when a description contained more than one related statement, these were divided into separate "units of meaning" (Joffe & Yardley, 2004). The exemplars were then coded into larger categories by two coders (first author and a research assistant) following the procedure used by Hepper et al. (2011). This was accomplished by (a) grouping exemplars that were identical, (b) grouping exemplars that were semantically related (e.g., selfishness and selfish), (c) grouping exemplars that were meaning-related (e.g., desiring and wishing), and (d) grouping exemplars that had a common meaning (e.g., rich and millionaire).

As a result of this procedure, the two coders together constituted a list with categories; discrepancies were resolved by discussion and, in the few cases where this was not sufficient, by a third party (second author). This resulted in a coding scheme that contained 60 categories. We chose to use a strict coding scheme that consisted of many categories because we did not want to lose too much information beforehand. In addition to constructing the coding sheet, the coders also jointly assigned each exemplar to one of the categories. Fifteen exemplars described groups or individuals (e.g., Scrooge McDuck and Berlusconi) and two exemplars literally mentioned *hebzucht* (the Dutch word for greed); these were excluded from the analysis. This left 1643 exemplars for use in the analysis.

Next, two other research assistants independently assigned each of these exemplars to only one code. Interrater agreement between the joint coding of the first author and the first research assistant (coding 1) and the individual codings of the two research assistants (coding 2 and 3) ranged from good to very good ($\kappa_{12}$ = .87, $\kappa_{13}$ = .77, $\kappa_{23}$ = .76). Therefore, the coding by the first assistant was used. The number of categories was reduced from 60 to 46, based on the number of times that categories were confounded and on comments by the coders about categories that were very similar ($\kappa$'s go up to $\kappa_{12}$ = .88, $\kappa_{13}$ = .81, $\kappa_{23}$ = .80). Table 2.1 displays the final categories and exemplar frequencies.

None of the features was mentioned by all participants. Only four features were mentioned by more than half of the participants (self-interest, acquisitiveness, stinginess, and materialism). *Self-interest* was the most frequently

mentioned feature (166 times), which is consistent with Balot's (2001) definition of greed as self-interest taken to such an extent that the effects on others are seen as unacceptable or immoral. However, greed is more than just excessive self-interest.

Other important elements of greed are *acquisitiveness* and *stinginess*, which were mentioned 133 and 118 times respectively. Acquisitiveness refers to behavior in which people have the urge to gain and possess as much as possible, whereas stinginess refers to behavior in which people do not want to give to others and spend their possessions. These features refer to two sides of the same medal; people want to get as much as they can, and once they have it they do not want to give it up anymore.

*Materialism* is also seen as an important feature of greed (mentioned 112 times). Though greed can be felt when one wants to be the best at something (Tickle, 2004), it seems that greed is often felt as the result of wanting to attain material goals. Another frequently mentioned feature was that greed is something bad or sinful. This is in line with previous research that has found that people tend to disapprove of greed, especially when it impels other people's behavior (Wang, Malhotra, & Murnighan, 2011). Other features that were often mentioned were money, envy, power, desire, not being generous and never being satisfied.

What is also interesting to note is that all other deadly sins, except wrath, were mentioned. Envy was the sin that was most often mentioned, and it seems that people get greedier when they see that others have what they lack. Greed is often seen as the root of all sins (Tickle, 2004), which might explain why other sins come so easily to mind when people have to describe greed.

Although several features of greed have negative connotations, people also described features of greed that are positive. People associated greed with ambition and the drive for more and better things. Thus, besides all the negative connotations that greed has, it can also help us to move forward by motivating us to attain our goals.

In conclusion, these findings reveal that the prototype of greed comprises of both positive and negative features. In extension of earlier definitions of greed (Balot, 2001) this study shows that greed is not just an extensive form of self-interest, but encompasses other features as well. Greed also motivates us to achieve our goals by making us strive for more and better things. However, it seems that though greed has positive sides, the consequences for others are mainly thought to be negative. This is in accordance with Wang et al. (2011), who found that people see greedy behavior as bad especially when it drives other people's behavior instead of their own.

## STUDY 2.2

In Study 2.2 participants were asked to indicate how typical each of the features derived from Study 2.1 was for greed. A prototype should not only be represented by the number of times each feature is mentioned, but also by how representative people find this feature for the concept. The representativeness of features can be determined by letting participants rate the centrality of these features (e.g., Gregg et al., 2008; Hassebrauck, 1997; Hepper et al., 2011). We included both American and Dutch participants in this study so we could investigate whether the greed prototype is similar across cultures.

### Method

Two-hundred and fifteen (45.1% American, 54.9% Dutch, 59.5% female, 40.0% male, 0,5% not specified, $M_{age}$ = 26.76, $SD$ = 9.96) participants were recruited via MTurk and received $0.30 in return for their participation or were recruited on the university campus and participated in exchange for course credit or money. Participants were shown each of the 46 features of Study 2.1 (in one of six random orders). For each feature, participants indicated how related it was to greed on an 8-point scale (1 = *not at all related*, 8 = *extremely related*).

**Table 2.1.** Features of greed, exemplars, and frequencies in Study 2.1 and centrality ratings in Study 2.2.

| | | Study 2.1 | Study 2.2 | |
|---|---|---|---|---|
| Feature | Exemplars by participants | *N* | *M* | *SD* |
| | **Central** | | | |
| Acquisitiveness | Sticky fingers, taking everything you can catch | 133 | 7.18 | 1.17 |
| Selfishness | Selfishness, self-fulfilling, not thinking of others | 166 | 6.90 | 1.28 |
| Striving for quantity | Wanting more, wanting everything | 31 | 6.79 | 1.41 |
| Materialism | Materialistic, goods are important, valuing goods | 112 | 6.73 | 1.40 |
| Never satisfied | Never enough, insatiable, not easily satisfied | 51 | 6.55 | 1.58 |
| Money | Money, euros, dollars, earning (money) | 77 | 6.36 | 1.57 |
| Envy | Envy, jealousy, wanting things that others have | 66 | 6.30 | 1.56 |
| Not generous | Not sharing, keeping everything for yourself, not generous | 55 | 6.29 | 1.65 |
| Egocentrism | Egocentrism, self-centered | 45 | 6.27 | 1.68 |
| No matter what the consequences are | No matter what, going behind someone else's back | 29 | 6.20 | 1.69 |
| Capitalism | Capitalism, consumer society, Western world | 28 | 6.06 | 1.50 |
| Power | Power, sovereign | 54 | 6.05 | 1.49 |
| Desire | Desiring, longing, wishing | 50 | 6.05 | 1.72 |
| Stinginess | Stingy, miserly | 118 | 5.91 | 1.82 |
| Ungrateful | Ungrateful, spoiled | 17 | 5.83 | 1.78 |
| Immoral behavior | Fraud, stealing, blackmailing | 20 | 5.66 | 1.87 |
| Wealth | Rich, millionaire, rich people | 40 | 5.64 | 1.80 |
| Manipulation | Manipulation, manipulating | 9 | 5.57 | 1.79 |
| Gluttony | Gluttony, fat, voracious | 18 | 5.54 | 2.00 |

| | | | | |
|---|---|---|---|---|
| Arrogance | Arrogance, cockiness | 34 | 5.48 | 1.86 |
| Tunnel vision | Narrow view, goal focused, obsession | 22 | 5.48 | 1.65 |
| Lust | Lust, sex, having many women | 4 | 5.46 | 1.91 |
| Striving for quality | Luxury, wanting the best, wanting new things | 24 | 5.36 | 1.96 |
| | **Peripheral** | | | |
| Status | Status, famous, respect | 15 | 5.24 | 1.97 |
| Vanity | Vanity, narcissism | 5 | 5.10 | 1.77 |
| Ambitious | Ambitious, being driven, wanting to be the best | 37 | 5.09 | 1.87 |
| Addiction | Addiction, addicted, compulsive | 7 | 5.07 | 2.08 |
| Inequality | Inequality, not fair, first world against second and third world | 26 | 5.04 | 2.07 |
| No empathy | Emotionless, no empathy, no sympathy | 17 | 5.00 | 1.96 |
| Spending | Spending, buying things, having a hole in your pocket | 25 | 4.99 | 2.18 |
| Sinful/Bad | Bad, sin, negative | 102 | 4.95 | 1.94 |
| Pride | Pride, being proud, showing off | 8 | 4.91 | 2.05 |
| Frustration | Frustration, angry when you can't get what you want | 4 | 4.80 | 2.02 |
| Collecting/Saving | Collecting, hoarding, saving | 14 | 4.70 | 2.00 |
| Non-social behavior | Not social, asocial, noisy | 38 | 4.68 | 2.11 |
| Unrealistic | Unrealistic worldview, wanting more than is realistic | 2 | 4.63 | 2.19 |
| Personality trait | Trait, universal, all humans have it | 19 | 4.52 | 1.89 |
| Unhappy | Unhappy, sad, worrying | 20 | 3.97 | 1.84 |
| Thriftiness | Thrifty, not wasting, cheap | 15 | 3.86 | 2.03 |
| Alone | Alone in the world, no friends, lonely | 43 | 3.78 | 1.97 |
| Being smart | Smart, contrived | 9 | 3.72 | 1.89 |

| | | | | |
|---|---|---|---|---|
| Standing up for yourself | Assertive, dominance, survival | 17 | 3.57 | 2.00 |
| Sloth | Sloth, lazy, taking the easy way out | 4 | 3.52 | 1.96 |
| No purpose | No purpose, things that have no purpose | 2 | 3.15 | 1.94 |
| Poverty | Poor, hunger, no money | 5 | 2.24 | 1.41 |
| Generous | Generosity, presents | 6 | 2.09 | 1.38 |

*Note.* Features are ordered by mean centrality ratings. Features are ordered based on the centrality ratings in Study 2.2, which used a scale from 1 (*not at all related to greed*) to 8 (*extremely related to greed*). Features were considered central or peripheral based on a median split in centrality ratings in Study 2.2 (median = 5.30).

## Results and discussion

Mean ratings and standard deviations of each feature are presented in the two rightmost columns of Table 2.1.[3] We analyzed these data following the procedure by Hassebrauck (1997) and Hepper et al. (2011). In order to evaluate the reliability of these means we computed the intraclass correlation (ICC[4]); this is the equivalent to the mean of all possible split-half correlations of the 215 subjects with regard to the 46 features. In order to do so, we transposed the dataset and treated the 46 features as cases and the 215 subjects as items. In general, participants' responses were very coherent (ICC = .99, $p < .001$, confidence interval = .98 to .99). Overall, the mean centrality ratings of Study 2.2 corresponded with the frequencies found in Study 2.1 ($r = .59$, $p < .001$). However there were some features that were not mentioned very often in the feature generation task in Study 2.1, but that were seen as central to greed in Study 2.2 (e.g., lust, manipulation).

Based on the mean ratings we conducted a median split which labeled the highest 23 features as central to greed and the lowest 23 features as peripheral to greed. Though we immediately recognize that the centrality of features follows more a continuous than a dichotomous scale, a median split allows us to test for differences between features that are more prototypical for greed and those that are that are less prototypical for greed in subsequent studies.

In accordance with the results of Study 2.1 and Balot's (2001) definition of greed, a central aspect of greed involves placing oneself before others. Self-interest and egocentrism, were seen as very central to greed. Greed is also characterized by desiring and acquiring goods and money. Desire, acquisitiveness, striving for quality and quantity, never being satisfied, materialism and money were all seen as highly characteristic of greed. Envy also seems to be a central characteristic. Envy is a catalyst of greed (Kleinberg, 2008), and it seems that we especially want

[3] Absolute agreement between the samples was very high (ICC = .93, $p < .001$, C = .82 to .97), indicating that American and Dutch people see greed similarly. We therefore report the combined ratings.

[4] We used a two-way mixed intraclass correlation for absolute agreement.

things that belong to others. Immoral behavior was also seen as central to greed, which is in accordance with Gino and Pierce (2009) who found that wealth triggered greed and envy, which in response led to more immoral behavior. The peripheral features of greed that were being alone, having no empathy, and non-social behavior. Other peripheral features of greed include that it is something bad or sinful, that it is a personality trait, that it has no purpose, and that it makes people unhappy.

As in Study 2.1, this study revealed that the prototype of greed consists of both positive and negative features. These findings are in line with previous observations (Hume, 1739/2001) in which greed is described as a two-edged sword. Greed is positive because it helps us to reach our goals and to strive for more, however in this process greed often hurts others and sometimes even ourselves because it can make us selfish, irrational, and immoral.

## STUDY 2.3

In Study 2.3 we examined whether the features that were identified as being central to greed in Study 2.2 are indeed more important to greed than peripheral features. Previous research has found that that the activation of a prototype results in heightened accessibility of related features (Hassebrauck, 1997; Hepper et al., 2011). The more central a feature is, the easier it comes to mind, and the more likely it is that people remember this feature (even when it was not presented). We thus expected that people would remember central features better than peripheral features, and that they would more often falsely remember central features compared to peripheral features.

### Method

Students ($N$ = 102, 86.3% female, $M_{age}$ = 19.63, $SD$ = 2.14) participated in an online study in exchange for course credit. The 46 features of greed that we identified in Studies 2.1 and 2.2 were divided into two sets of 23 features. In each set eleven or twelve features were central and eleven or twelve features were peripheral. Following the procedure by Hepper et al. (2011), we enclosed each

feature in a sentence (e.g., greed is about striving for more) to activate the concept of greed.

Participants were randomly assigned to one of two sets. Participants were told that they would be presented with each of the statements for four seconds and that they should remember each of the characteristics in the statement as good as possible. Participants then completed an unrelated study that took approximately five minutes. After this distractor, participants had three minutes to recall all features of greed that they saw before.[5] As a final task, participants received a list of all 46 features of greed and were instructed to drag each feature into a box that was called "features that you did see before", when they saw this feature during the first part of the experiment, or into a box called "features that you did not see before", when they had not encountered this feature in the first part of the experiment.

## Results and discussion

One participant was excluded prior to the analyses because she indicated that she did not pay attention to the greed features. Central and peripheral features were compared on each of the four dependent variables (correct free recall, false free recall, correct recognition, and false recognition; see Table 2.2 for means and standard deviations).

A paired samples *t*-test was used to compare the amount of central and peripheral features that were correctly freely recalled. Participants freely recalled a higher number of central features than peripheral features, $t(100) = 4.70$, $p < .001$, $d = 0.57$. Because the false recall data was not normally distributed we conducted a Wilcoxon signed rank test. Participants falsely recalled a higher number of central features than peripheral features, Wilcoxon's $Z(100) = -2.64$, $p = .008$, $r = .26$.[6]

[5] Sometimes participants wrote down the same feature twice; in those cases we only counted the feature once.

[6] A paired samples *t*-test gave similar results, $t(100) = 2.69$, $p = .008$, $d = 0.37$.

**Table 2.2.** Mean number of recalled and recognized central and peripheral features (both correct and false) in Study 2.3.

| | Central | | Peripheral | |
|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* |
| Correct recall | 3.47 | 1.97 | 2.42 | 1.66 |
| False recall | 0.21 | 0.52 | 0.06 | 0.24 |
| Correct recognition | 8.55 | 1.56 | 7.58 | 2.24 |
| False recognition | 3.69 | 2.13 | 1.98 | 1.51 |

The memory data was normally distributed, allowing for paired sample *t*-tests. Participants recognized more central than peripheral features when they saw a list with all the features of greed, $t(100) = 4.06$, $p <. 001$, $d = 0.88$. In addition, participants also falsely recognized more central than peripheral features, $t(100) = 7.71$, $p < .001$, $d = 0.93$.

Central features of greed were better recalled and better recognized than peripheral features. Furthermore, participants more often recalled and recognized central features that they did not see before. This indicates that when the concept of greed is activated (by means of the presentation of concepts related to greed), central features are more accessible, and therefore people think they saw those features, even if this was not the case (Hassebrauck, 1997). In Study 2.4, we attempted to replicate this differential information-processing of central and peripheral features by studying speed of classification.

## STUDY 2.4

In Study 2.4, we tried to further test the distinction between central and peripheral features of greed. Previous research has found that people are faster at classifying features that are central to a prototype (Fehr, Russell, & Ward, 1982; Hassebrauck, 1997; Hepper et al., 2011) and are sometimes not able to determine whether peripheral features belong to the prototype at all (Fehr et al., 1982; Fehr & Russell, 1984). We therefore expected that people would be faster and better able in classifying central compared to peripheral features of greed.

## Method

Eighty-seven students (75.9% female, $M_{age}$ = 20.46, $SD$ = 2.06) participated in exchange for course credit or €8.00. For all of the 46 features of greed, we picked one of the most frequently used exemplars. This resulted in 46 greed related stimuli (e.g., for money the stimulus was "money" and for striving for quantity the stimulus was "striving for more". In addition, we came up with an equal amount of control stimuli that were unrelated to greed (e.g., "turtle" and "window").

Participants were informed that they were participating in a reaction time study and that they were to respond as quickly as possible. For each trial participants received one of the 92 stimuli and were asked to indicate whether this word was a feature of greed or not. Before the actual experiment started, participants received ten practice trials. In the actual experiment participants received all 92 stimuli. For each trial the answer (Is this a characteristic of greed? *yes* or *no*) and reaction time were recorded.

## Results and discussion

First we checked the percentages with which central, peripheral, and control stimuli were classified as being a feature of greed (see Table 2.3). Because the skewedness of the three types of stimuli varied, we used nonparametric tests to test for a main effect of feature type on classification, Friedman $\chi^2$ (2, $N$ = 87) = 170.16, $p < .001$.[7] Central features were more often classified as features of greed than peripheral features, Wilcoxon's $Z(86) = 7.92$, $p < .001$, $r = .85$,[8] and peripheral features were more often classified as features of greed than control features, Wilcoxon's $Z(86) = 8.11$, $p < .001$, $r = .87$.[9]

[7] A repeated measures ANOVA gave similar results, $F(2, 85) = 1099{,}85$, $p < .001$, $\eta_p^2 = .96$.
[8] A paired samples $t$-test gave similar results, $t(86) = 19.744$, $p < .001$, $d = 1.72$.
[9] A paired samples $t$-test gave similar results, $t(86) = 23.71$, $p < .001$, $d = 3.53$.

**Table 2.3.** Percentages and speed in classification of central and peripheral features of greed in Study 2.4.

| | Central | | Peripheral | | Control | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Percentage categorized as greed (%) | 75.01 | 15.10 | 46.08 | 17.80 | 1.00 | 3.00 |
| Response speed (ms) | 1116.79 | 328.16 | 1247.40 | 431.43 | 952.82 | 680.84 |
| Response speed (log) | 6.98 | 0.27 | 7.08 | 0.32 | 6.72 | 0.49 |

Following recommendations (Greenwald, Nosek, & Banaji, 2003), we recoded extremely slow (>3000ms) and extremely fast (<300ms) latencies to respectively 3000ms and 300ms and did a logarithmic transformation (Hepper et al., 2011). We found a significant main effect of feature type on classification speed for features that were seen as related to greed ("*yes*"-responses), $F(2, 85) = 5.79$, $p = .010$, $\eta_p^2 = .36$. Participants were faster in classifying central features as related to greed than peripheral features, $t(86) = -5.61$, $p < .001$, $d = 0.27$. Participants were slower in classifying peripheral features than control features, $t(22) = 3.08$, $p = .006$, $d = 0.64$. This might be the result of the weaker association between greed and the peripheral features. Central features are easy to classify (as being part of greed) because they are seen as very much related to greed. Control features are also easy to classify (as not being part of greed) because they are not related at all to greed. Peripheral features are harder to classify because they are to some extent related to greed, but the relationship between greed and these peripheral features is more ambiguous.

Consistent with previous prototype findings (e.g., Hassebrauck, 1997; Hepper et al., 2011) this study found that people more often and quicker classify central than peripheral features as related to greed, Furthermore, this study found that participants were slower in classifying peripheral features compared to control features.

## STUDY 2.5

Study 2.5 investigated the ecological validity of the greed prototype. Participants were asked to recall a real life situation in which they felt greedy. If central features are more related to greed than peripheral features, then autobiographical events should be better described by central features than peripheral features. In addition, central features should be better at discriminating between greedy and everyday events.

### Method

Participants were Americans recruited on MTurk (70.3%) and paid $0.40 for their participation and Dutch students approached on the university campus (29.7%) and asked to volunteer in this study ($N$ = 144, 55.9% male, 43.4% female, 0.7% not specified, $M_{age}$ = 21.88, $SD$ = 2.06). Participants were randomly assigned to one of two conditions (Greed vs. Control). They were asked to recall a situation in which they felt greedy or an everyday situation.[10] After describing the situation, participants rated to what extent each of the 46 features was present in that situation (cf. Hepper et al., 2011). Examples of statements were "I behaved selfishly in this situation", "This situation involved materialism", and "I behaved arrogant in this situation", and they were all rated on a scale from 1 (*not at all*) to 8 (*very much*). Analyses were conducted on the averages for central ($M$ = 3.90, $SD$ = 1.60, α = .94) and peripheral ($M$ = 3.36, $SD$ = 1.21, α = .88) features.

### Results and discussion

A 2 (Greed vs. Control) × 2 (Central vs. Peripheral) mixed ANOVA revealed an interaction effect between situation and centrality of features, $F(1, 142)$ = 122.48, $p$ < .001, $\eta_p^2$ = .46.[11] See Table 2.4 for an overview of the means. Statements about the central features were rated to be more present by the participants than peripheral features in the greed condition, $t(73)$ = 11.89, $p$ <

[10] The types of situations described in the control condition varied (e.g., having dinner with friends, shopping for groceries, cleaning the bathroom).

[11] Because we had Dutch and American participants we controlled for nationality. Nationality did not influence the ratings on central and peripheral features, $F(1, 142) = 0.061$, $p = .62$, $\eta_p^2 = .00$.

.001, $d$ = 1.12, whereas there was no difference between central and peripheral features in the control condition, $t(70)$ = -1.10, $p$ = .27, $d$ = 0.07.

Furthermore, we found that the presence of central features differed stronger between everyday and greedy situations, $t(143)$ = -12.042, $p$ < .001, $d$ = 2.09 than the presence of peripheral features between both conditions, $t(143)$ = -5.44, $p$ < .001, $d$ = 0.91. This study showed that central features are more present than peripheral features during greedy situations. Furthermore central features could differentiate better between greedy and everyday events.

## GENERAL DISCUSSION

The aim of this research was to obtain a better understanding of what people define as greed. While there is much written and said about greed, it is also understudied. As Wang and Murnighan (2011) concluded, it is the fuzzy nature of the greed concept itself that lies at heart of these problems. Many things are related to greed, but none of these is necessarily present in every instance of greed. In this research we presented a prototype analysis consisting of a series of five studies, allowing a better understanding of how people view greed. People think that the desire to acquire more, the dissatisfaction of never having enough, self-interest, envy, materialism, and a tunnel vision in obtaining more are important components of greed. We will discuss each of these features of greed later on, after we have summarized the findings.

**Table 2.4.** Means and standard deviations of central and peripheral features in greedy and everyday situations in Study 2.5.

| | Type of situation | | | |
|---|---|---|---|---|
| | Greed | | Everyday | |
| Type of feature | *M* | *SD* | *M* | *SD* |
| Central features | 5.03 | 1.00 | 2.73 | 1.22 |
| Peripheral features | 3.85 | 1.10 | 2.85 | 1.12 |

*Note.* Features were rated on an 8-point scale ranging from 1 = *not at all* to 8 = *very much*.

In five studies we investigated the prototypical features of greed. Studies 2.1 and 2.2 identified a list of features that are prototypical for greed and determined for each feature whether it was central or peripheral. Consistent with prototype theory we found that none of these features alone could describe each instance of greed, nor could any single feature be used to categorically discriminate between greed and related constructs and emotions. However, taken together, a limited number of central features was able to adequately describe greed in a variety of situations. In accordance with prototype analyses on other constructs, Studies 2.3 and 2.4 found that central and peripheral features are processed differently. People more readily remembered and classified central features than peripheral features (Hassebrauck, 1997; Hepper et al., 2011). In Study 2.5 we showed that central features are more prominent in autobiographical greedy situations compared to peripheral features, and that those central features were able to distinguish everyday situations from greedy situations.

## Towards a working hypothesis of greed

Based on these findings we propose a new working hypothesis on what greed is. Prototype analyses are extremely useful for identifying associations between constructs and their components, but remain mute about the nature of such associations (e.g., core experiences, concomitant experiences, or consequences). Our analysis is no exception to this; although we identify constructs that are closely linked to greed in the eye of our participants, some of them are actually best seen as other (but related) constructs. For example, we find that envy is a central feature to greed. But they are obviously not the same experiences: a person can be greedy without being envious, or envious without being greedy (e.g., the malicious type envy mainly contains ill will towards the envied person, but no coveting; Van de Ven, Zeelenberg, & Pieters, 2009). Although we cannot distinguish which central components of greed are core elements, concomitants, or consequences based on the prototype analysis itself, we formulate a working hypothesis based on a combination of the results of our prototype analysis and our reading of the literature that was reviewed in the introduction. Further

research should further establish this definition of greed and its relationship with other, related constructs.

## A working hypothesis of greed:

Greed is the experience of desiring to acquire more and the dissatisfaction of never having enough. It is associated with goals of materialism and feelings of envy and it may lead to self-interested behavior and tunnel vision.

### Core elements

We believe that the core of the experience of greed lies in the *desire to acquire more* and the *dissatisfaction of never having enough*. Participants indicated that acquiring as much as possible and as good as possible of any desirable thing, be it material or social, is one of the key determinants of greed. Central features related to this component are "acquisitiveness", "striving for quantity", "striving for quality", and "desire". Participants also mentioned that "never being satisfied" and "being ungrateful" were relevant to greed. This is in line with Levine's (2000) idea of greed as a gap between acquiring or consuming a product and gaining satisfaction and confirms the idea that greedy people find themselves on a hedonic treadmill (Diener et al., 1999). Note that we consider two other (related) central concepts "stinginess" and "not generous" to be part of our definition as well, although more implicitly so. Our definition refers to the desire to acquire *more*, it is not just about acquiring things but about acquiring *more than one currently has*. To be able to acquire more than one currently has, it is of course also important to keep what one already has.

The desire to acquire more and the dissatisfaction of never having enough as the two core components of greed is in line with dictionary definitions of greed, which focus on greed as being an insatiable desire for more. The two components also signal the inherent ambiguity of greed: where a desire to acquire is something that can typically be seen as a positive thing, never being satisfied with what you have is clearly negative.

## Concomitants

We believe that there are also central features of greed that can be seen more as concomitants than as core elements of greed itself. Experiences of greed are often accompanied by other, closely related experiences, and as a result it makes sense that these other experiences come easily to mind when people have to write down features of greed. One of these is the goal of *materialism,* exemplified by "materialism", "money", "wealth", and "capitalism". Materialism and greed are sometimes used interchangeably, but they are clearly not the same. Although in the scientific literature materialism is often defined as a desire to acquire material goods (e.g., Belk, 1984), official dictionary definitions see it more as an attitude than a motivational drive, and describe it for example as "the belief that having money and possessions is the most important thing in life" (Online Cambridge Learner's Dictionary, 2013). This fits the view of Richins (2014) who sees materialism as the personal value that acquiring material goods is a central goal in life. To us this implies that materialism is the general mindset of people to value material goods, where greed is more the motivational force that makes people desire to keep wanting more (amongst which are material goods). For example, materialists place great value on status display and as a result desire products that signal status (Fournier & Richins, 1991). Greed on the other hand can also be experienced for things that do not signal status (Tickle, 2004). Furthermore, our prototype analysis shows that gluttony and lust (desires for experiences) are also seen as central components of greed, suggesting that greed is broader than the material domain.

An emotion that was associated with greed is *envy*, which involves the feeling of lacking something that someone else has (Smith & Kim, 2007). The line between greed and envy may sometimes be blurry, but they are clearly distinct processes. The main difference is that envy is about the realization that someone else is better off than oneself, whereas greed is focused on one's own insatiable desire for more (Maijala et al., 2000). Of course, feelings of envy could be a catalyst of greed (Kleinberg, 2008). The common denominator in both emotions seems to be that they both signal that one is not satisfied with the current

situation, but the focus is different. Where greed focuses on getting more than one currently has, envy focuses on getting what other people have.

### Consequences

Lastly, we think that besides core elements and concomitants there are also features that can be classified as consequences of greed. Based on our prototype analysis and the literature, we believe that there are two main consequences of the experiences of greed. A social consequence is *self-interest,* exemplified by "selfishness", "egocentrism, "not caring about the consequences for others", "not being generous", "stinginess", "manipulation", and "immoral behavior". The idea that self-interest is part of greed is consistent with Balot's (2001) definition of greed as self-interest at the cost of others. However, we think self-interest is better seen as a consequence of greed, rather than a core of its experience. Through the desire to keep acquiring more, one likely focuses too much on oneself and too little on others. But selfishness is not greed itself, rather it follows from the acquisitiveness and the continuous desire for more. The insatiable desire for more may even cause people to behave in immoral ways. Greed has for example been related to corporate fraud (Smith, 2003), which has resulted in the downfall of large corporations such as Enron and Tyco (Wells, 2011). People also mentioned features that were related to *superiority* (for example "arrogance" and "power"). It is likely that because greed is related to superiority they also think they can behave more selfishly (cf. Campbell, Bonacci, Shelton, Exline, & Bushman, 2004).

*Tunnel vision* is another consequence of greed. Greed can cause an obsession with an object of desire and can make everything else seem less important. This component might explain why greedy people sometimes act in ways that are irrational and detrimental for themselves. Focusing too much on one's own immediate benefits may cause people to forget the consequences for society as a whole or for their own future situation. For example, greed has been found to be associated with higher debts (Lunt & Livingstone, 1991). Though some debts can involve wise investments (e.g., a mortgage for a house or a student loan to cover tuition), many debts do not. Most of the time, the interest that has to be

paid for consumer loans (e.g., when buying a new TV or laptop) does not exceed the benefits of buying the item now compared to buying the item when one has saved for this purchase. So, the excessive focus on acquiring more and more that is characteristic of greed may lead people to neglect both their own long-term interests (tunnel vision) but also those of others around them (self-interest).

Furthermore, this prototype analysis revealed that *greed is broader than material goods* (Tickle, 2004). Greed is not only about having more money and goods, it also involves wanting to improve oneself and to be better. The two other sins of excess, "lust" and "gluttony", were both seen as central to greed, so greed clearly involves much more than mere materialistic desires. It must of course be noted that most non-materialistic desires were rated as less central than material desires, so they do seem to be less important to greed than their more materialistic counterparts.

## Different perspectives on greed

As was discussed in the introduction, there are different perspectives on the evaluation of greed. In the prototype analysis, we have found evidence for both positive and negative perspectives on greed, though the majority of greed components seem to have negative connotations. One explanation for this finding could be that greed is, on average, seen as much more negative than positive. However, an alternative explanation could have to do with the perspective that people take when thinking about greed. Other people's greedy behavior is evaluated more negatively than one's own greedy behavior (Wang et al., 2011). So, when people think of greed as the property of others when asked to describe greed they will tend to come up more with negative features.

The difference in perspective taking relates to differences in evaluations of greed from economic and moral viewpoints. For a long time, economists have argued that people are rational agents that act self-interested to maximize their own profits (homo economicus). From this perspective, behaving greedy is thus good and rational. When people are not the victim of greed but the actor, or if people have learned that "greed is good", it is understandable that this colors their

opinion of greed. Indeed, several studies have investigated the effects of exposure to economic models (people with economic education vs. people without economic education) and have found that economists indeed tend to lie more (López-Pérez & Spiegelman, 2012), are less cooperative (Frank, Gilovich, & Regan, 1993), keep more money to themselves (Carter & Irons, 1991), and are more likely to free ride (Marwell & Ames, 1981). These are all types of behavior that are associated with being greedy. Whereas economics promotes taking the perspective of greed in the actor, negative, moral evaluations of greed often stem from taking the perspective of other people in the greedy actor's surroundings. So, the difference in evaluations of greed may not be caused by an intrinsic disagreement on the moral nature of greed, but rather by a difference in the perspective that people take when evaluating greed (i.e., an actor or observer perspective). This is in line with findings of Wang et al. (2011) that found that people are more likely to condemn other people's greed instead of their own. As such, exposure to economic models may cause people to become more positive towards greed compared to people who are not as familiar with these models.

## Future research

Besides helping future research by formulating a novel working definition of greed, we see two plausible avenues for future research: the development of a greed scale that measures dispositional tendencies to experience greed and the study of the behavioral consequences of greed. First, the components that we identified are a good starting point to create a measure of how greedy individuals are. It is likely that individuals differ in their tendency to experience greed, so a logical next step in greed research would be to construct an instrument measuring individual differences in greed proneness. Such a dispositional greed scale would subsequently help to identify personality characteristics or demographics associated with greed.

Another interesting possibility is to study the behavioral consequences of greed. We found that people associate greed with self-interest, envy, and materialism. It is likely that people who are self-interested, envious, and materialistic are also more prone to be greedy. Greed may also be related to

elements that were not explicitly mentioned in this research. Self-control and impulsiveness are very likely to play a role in greediness and these elements might be related to the irrational nature of greed. In addition, it would be interesting to further explore the phenomenological content of greed as an emotion (i.e., not a disposition). Experiential content analyses of the feelings, thoughts, action tendencies, and emotivations associated with an emotion have proven to be very useful for understanding the behavior that follows from an emotion (Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008).

## Concluding remarks

In this research we used layperson's conceptualizations to reveal the prototype of greed. This prototype research has identified a set of components that can be used to explain why and when people are greedy and how this affects behavior. We found that the desire to acquire more and dissatisfaction of never having enough are the two most important components of greed. Greed is associated with materialism and envy and may lead to self-interested behavior and tunnel vision. We hope that these findings inspire and assist future research on this fascinating topic.

# CHAPTER 3
## Dispositional Greed

*Greed is an important motive: it is seen as both productive (a source of ambition; the motor of the economy) and destructive (undermining social relationships; the cause of the late 2000s financial crisis). However, relatively little is known about what greed is and does. This article reports on five studies that develop and test the 7-item Dispositional Greed Scale (DGS). Study 3.1 (including four separate samples from two different countries, total N = 6092) provides evidence for the construct and discriminant validity of the DGS in terms of positive correlations with maximization, self-interest, envy, materialism, and impulsiveness, and negative correlations with self-control and life satisfaction. Study 3.2 (N = 290) presents further evidence for discriminant validity, finding that the DGS predicts greedy behavioral tendencies over and above materialism. Furthermore, the DGS predicts economic behavior: greedy people allocate more money to themselves in dictator games (Study 3.3, N = 300) and ultimatum games (Study 3.4, N = 603), and take more in a resource dilemma (Study 3.5, N = 305). These findings shed light on what greed is and does, how people differ in greed, and how greed can be measured. In addition, they show the importance of greed in economic behavior and provide directions for future studies.*

This chapter is based on Seuntjens, T. G., Zeelenberg, M., Van de Ven, N., & Breugelmans, S. M. (2015b). Dispositional greed. *Journal of Personality and Social Psychology, 108,* 917-933. doi: 10.1037/pspp0000031

Most people readily recognize instances of greed. For example, greedy people are always first in line for food and drinks at a party, repeatedly complain about their salaries (even after getting a pay-raise), and continuously buy more stuff they do not need. Common to such observations is that greedy people seem to be dissatisfied with their current state of affairs and that for them enough never seems to be enough. On the other hand, in our everyday lives we also encounter many people who seem anything but greedy. Such people are satisfied with what they have and who they are. They know when to be happy and to stop striving for more. In this chapter, we present the development of an instrument that captures such individual differences in greediness and that predicts greed-induced behaviors.

We have recently started investigating the psychology of greed, to better understand what it is and what it does (Seuntjens, Zeelenberg, Breugelmans, & Van de Ven, 2015a). Based on this initial research, we constructed a working definition of greed as "the tendency to always want more and never being satisfied with what one currently has". We observed that there appears to be a shared intuition that some people are greedier than others, and that this disposition is considered to be rather stable. Should such individual differences in greed exist, then they should also manifest themselves in greedy behavior. This would be particularly interesting because greed is an important construct in economic theory and other models of behavior as we explain later. Until now, however, there has been only very little empirical research on greed. Together, these observations led to the research that we present here, on the development and test of a scale that captures individual differences in greed.

Below, we briefly review what greed is and how it is thought to influence behavior. More specifically, we look at historical perspectives on greed in philosophy, religion, and economics. Next, we propose a psychological theory of greed that is grounded in the idea that greed is dispositional, and that it differs from other, related, dispositions. We then turn to the empirical part, where we develop the Dispositional Greed Scale (DGS), and examine its reliability, its discriminant validity, and its predictive validity. In the General Discussion, we

address how differences in the tendency to be greedy relate to other dispositions, as well as to behavioral phenomena in everyday life.

## A brief history of greed

Greed has been with us since the beginning of time, and through the ages, scholars have written extensively about the topic (Goldberg, 1994; Robertson, 2001). Here, we sketch only a limited account of these extensive attempts to understand greed, namely those parts relevant for the psychology of greed. We refer the reader to Wang and Murnighan (2011), Sutherland (2014), and Oka and Kuijt (2014), for more extensive overviews. Although much has been written about greed, very little of the work is empirical. Through our research, we hope to start filling this gap.

Greed has been a topic of discussion for as long as the acquisition of wealth and power exists. From the earliest ideas about greed, it already becomes apparent that greed can be seen as good and as bad, as a virtue and as a vice (see also, Sutherland, 2014). Thucydides (460 – 395 BCE) argued that greed is not necessarily negative, because it motivates progress (Zagorin, 2009), Plato (427 – 347 BCE) wrote how greed is the cause of war, civil conflict, and immorality and how it is part of human nature (Balot, 2001), and Aristotle (384 – 322 BCE) argued that greed is confusion between what we actually need and what we ideally want (see Wang & Murnighan, 2011). Later, Hume (1739/2001) argued that greed is as a double-edged sword: on the one hand it motivates people to perform better, but on the other hand it has destructive consequences for society. Greed has thus been related to acquisition of wealth, and is seen as productive on the one hand, and as harmful to relationships on the other hand.

Greed is discussed and condemned in virtually all world religions. In Christianity, greed is one of the seven deadly sins. Some even argue that it is the matriarch of all sins, with the other sins stemming from greed (Tickle, 2004). However, this negative stance towards greed does not mean that Christianity condemned the acquisition of wealth. In the Old Testament, the wealth of Abraham is seen as a blessing from God. In the New Testament, however, striving

for more wealth is seen as a sin (Baker, 2006). Especially the teachings of Saint Paul shifted the idea of greed as something positive and productive, to greed as a sin or vice. Saint Paul saw avarice ("greed") as the "root of all evil". He also made the interesting distinction between *philargyria*, which is the love for money, and *pleonexia*, which is a general tendency to want more of everything (Newhauser, 2000; see also Tickle, 2004). This is consistent with our recent findings that greed applies not only to a desire for money, but to a general desire for more (Seuntjens et al., 2015a). This is also consistent with the ideas of Calvin. He believed that life is framed to the will of God, and if one's work is done honest, one should be able to enjoy the perks associated with it. If rich people use their wealth and invest in society and others, this benefits the society as a whole. Calvin thus does not necessarily say that greed is good, but he argues that the desire to acquire wealth can also have positive outcomes for society (Dommen, 2011; Zinbarg, 2001).

Religions generally have a negative evaluation of greed. In Buddhism, greed is one of the three poisons creating bad karma (Nath, 1998). In Hinduism, greed is an obstruction to spiritual development (Sivaraman, 1989). According to Rafiabadi (2003), Islam as a religion is highly dependent on rewards from commercial activities and thus not against the accumulation of wealth. The solution for greed in Islam is making generosity and charity obligatory for righteous Muslims (Oka & Kuijt, 2014). Judaism condemns greed because taking more than one's own "share robs other people of their opportunity to get their due" (Bloch, 1984, p. 154). The various religions thus generally condemn greed because it is representative of a bad personality, and because greedy behavior can be harmful to others.

This last element—the potential conflict between personal wealth accumulation and the outcomes of others—was central in Adam Smith's thinking (1776/1994) that formed the basis of capitalism and current economic theorizing. Smith did worry that wealth accumulation in an unlimited form could lead to the rich having advantages and power over the poor, but he also argued that self-interested wealth accumulation is an important force behind economic growth. According to Smith, "it is not from the benevolence of the

butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest" (Smith, 1776/1994, p. 15). Classical economic theory assumes that people should maximize their own outcomes and that this leads to more growth and development that benefits the prosperity of society as a whole. This assumption is referred to as the axiom of greed (or axiom of maximization). It holds that "If A contains more of one good than B, and at least as much as B of all other goods, A will be preferred over B" (Lea, Tarpy, & Webley, 1987, p. 109). According to the axiom, people should always want more of a desirable good, and thus prefer the option that delivers on this desire.

The idea in economics is that greed is a driving force for economic growth and development (Greenfeld, 2001), and that society can benefit from greedy individuals. If people have a desire to maximize their outcomes, and hence be greedy, this ultimately leads to individuals engaging in activities that benefit society as a whole (Oka & Kuijt, 2014). Greed has been associated with positive economic outcomes such as more employment, wealth, and well-being (Melleuish, 2009). The idea of greed as a driving force is also present in the evolutionary perspective on greed. It has been argued that greed promotes self-preservation, and that people living in environments that exhibit scarcity of resources have an evolutionary advantage when feeling the tendency to gain and hoard (Cassill & Watkins, 2005; Robertson, 2001). However, greed can also have adverse economic consequences. Greed has been related to consumer debts (Livingstone & Lunt, 1992) and to lower stockholder returns (Haynes, Campbell, & Hitt, 2014). Furthermore, the news often reports on cases where greed is linked to financial scandals and bankruptcy cases (Zandi, 2008). Brummer (2014) links greed explicitly to the bad banking practices that led to the late 2000s financial crisis. Corporate fraud cases such as the Bernie Madoff scandal and Enron scandal are all partly ascribed to the greed of its top executives. According to Levine (2005), greed causes people to only focus on their own fulfillment, ignoring norms and values. This might also explain why greed is thought to be related to other types of negative behavior, such as deception (Cohen, Gunia, Kim-Jun, & Murnighan, 2009), theft (Caudil, 1988), fraud (Smith, 2003), and corruption (Rose-Ackerman, 1999).

In sum, greed has been central in classical philosophy, religious thinking, and economic theorizing. Claims have been made about the productive side of greed, but also about its potential to harm interpersonal relations. Greed can thus be good (constructive) and bad (destructive). In this light, it is remarkable that psychologists have paid only little attention to greed. If they write about greed, it is usually only in post-hoc explanations of behavior. Greed has not yet been the subject of theorizing and thorough empirical investigation. According to Wang and Murnighan (2011), one of the reasons for the lack of empirical research on greed, is the difficulty people have with defining greed.

## Towards a theory of greed

Let us start by addressing what we do know about the psychology of greed. We recently performed a prototype analysis of greed, in order to provide a better conceptualization of how people define this motivational state (Seuntjens et al., 2015a). Five studies revealed that the core experience of greed consists of both a desire to acquire more and the dissatisfaction of never having enough. Put differently, greed is an insatiable hunger for more. Specifically, we asked participants to write down what they thought greed was. Four independent coders categorized these descriptions into features of greed. Follow up studies showed these features could be divided into central (core components) and peripheral (related, but less important) features of greed. Central to greed is to always want more and to never be satisfied. Although greed often involves a hunger for money and material goods (think of Scrooge McDuck), the prototype analysis further revealed that greed is broader than this. Greed is also experienced for non-material desires. For example, greed can also involve desires such as sex, food, power, and status. This is in line with the ideas of Saint Paul that we described earlier.

In addition, the prototype analysis provided valuable information about how greed is related to other constructs. We found that people associated greed most clearly with being self-interested, looking for better opportunities ("maximizing"), feeling envious, and being materialistic. We have reasons to believe that greed is a separate motive that independently influences behavioral

choices over and above these related motives. Below we explain what these reasons are, and why developing a scale assessing dispositional greed can further our understanding of individual differences in (economic) behavior. Interestingly, scales to measure individual differences have been developed for all four other motives (*Maximization*: Nenkov, Morrin, Ward, Schwartz, & Hulland, 2008; *Self-interest*: Van Lange, Otten, de Bruin, & Joireman, 1997; *Envy*: Smith, Parrott, Diener, Hoyle, & Kim, 1999; *Materialism*: Richins, 2004). These scales have been applied successfully to a wide range of behaviors. In the empirical part of our article, we will relate our newly developed DGS to these scales (and others). In that way we investigate greed's nomological network and establish discriminant validity. Let us first compare greed to these four other motives on the basis of theory.

Greed is conceptually most clearly related to maximization, which is apparent from the fact that the assumption of maximization is sometimes referred to as the axiom of greed. Rational economic man, in the words of Simon (1955, p. 99), is assumed to have "a skill in computation that enables him to calculate, for the alternative courses of action that are available to him, which of these will permit him to reach the highest attainable point on his preference scale". According to Simon, maximization is not realizable in everyday life because of people's limited cognitive capacities and the complex information in the environment. Hence, people are often motivated to satisfice instead of maximize. That is, they do not strive for the optimal outcome, but for something that is good enough (i.e., just above the minimal acceptable threshold). Schwartz, Ward, Monterosso, Lyubomirsky, White, and Lehman (2002) took the ideas of Simon and developed a scale that assesses individual differences in the extent to which people are motivated to maximize or rather satisfice (see also, Nenkov et al., 2008). For maximizers, the ultimate goal is to make the best decision possible. Greedy people just want more. Wanting more does not necessarily involve a rational balancing of costs and benefits. A greedy person might go into debt to buy desired products (Livingstone & Lunt, 1992), which only under certain circumstances can be seen as rational maximizing behavior. Thus, maximization leads to a desire to acquire

*the best* outcome, whereas greed leads just to the desire to acquire more (Seuntjens et al., 2015a).

Greed is also clearly related to self-interest. Greedy people want more for themselves. The assumption of self-interest in economic theory refers to the fact that rational actors are believed to care only about their own outcomes and be indifferent with respect to the outcomes of others (e.g., Miller, 1999). However, people often do care about the outcomes of others (e.g., Fehr & Schmidt, 1999; Walster, Walster, & Berscheid, 1978). They may want others to have similar outcomes to themselves and strive for equality, or they prefer to have more than others and show a competitive attitude. There are stable individual differences in how self-interested people are and how much they care about the outcomes of others. These differences have been studied under the name of Social Value Orientation (SVO; Murphy, Ackermann, & Handgraaf, 2011; Van Lange et al., 1997). Some people have argued that greed and self-interest are the same (Balot, 2001), while others have argued that they are different (Wang & Murnighan, 2011). We share the latter viewpoint and see greed as different from self-interest. Where self-interest is rational, greed certainly does not seem to be a consistently rational drive.

Greed is one of the seven deadly sins, and so is envy. Envy is the emotion that arises when someone else is better off than oneself (e.g., Van de Ven, Zeelenberg, & Pieters, 2009) Individual differences in greed can be reliably measured (Smith et al., 1999). Greed and envy are similar in the way that they both refer to feelings of not being happy with the current state of affairs. However, they differ in their focus. People who are envious are not satisfied because they compare their own situation to that of others who are better off. In contrast, people who are greedy are not satisfied because they compare their own situation to an imaginary situation of having more. In addition, it requires two people for envy to occur (one person being envious, and the other being envied), whereas greed only requires one person. Envy is thus inherently more social in the sense that it stems from social comparison processes (wanting what others have), while greed is more individualistic (wanting more than I have now; Maijala, Mannukka, &

Nikkonen, 2000). Still, both greed and envy are related to being dissatisfied and wanting more. We will examine how greed and envy are related, and also their separate relations with social comparison orientation (Gibbons & Buunk, 1999). For example, previous research has found that dispositional envy is positively correlated with individual differences in social comparison (Zeelenberg & Pieters, 2007). We believe that such a relationship for greed and social comparison will be absent.

Finally, our prototype analysis related greed to materialism. Materialism refers to the importance that people attach to worldly possessions (Belk, 1984; Pieters, 2013). For people who are materialistic, the acquisition of goods plays a central role in their life, and they believe that they need material goods to be happy and signal their success (Richins & Dawson, 1992). People differ in the extent to which they are materialistic; whereas some people see the acquisition of goods as extremely important, others do not care as much. Although greed and materialism are related, they are not the same. Greed is the broader concept and does not only apply to material goods (Tickle, 2004). One can also be greedy for non-materialistic things such as food, sex, power, or success (Seuntjens et al., 2015a).

Thus, we propose that greed is a distinct motive that is related to, but different from, maximization, self-interest, envy, and materialism. We will examine this proposition empirically and relate greed to a selection of other relevant constructs that have shown stable individual differences. For example, we believe that greed should be related to people's dispositions to spend money or save money. A scale that measures individual differences in the extent to which people are spend thrifty or miserly is the tightwads-spendthrifts scale (Rick, Cryder, & Loewenstein, 2008). We believe that people scoring high on dispositional greed spend their money more easily and should thus be more represented on the spendthrift end of the scale.

Greed should also be related to impulsiveness and self-control. When people have willpower they can resist the urge to act upon their impulses. However, when willpower is limited, people usually give in to these urges (Baumeister,

2002). Impulsiveness is thus the outcome of a conflict between desires and willpower (Hoch & Loewenstein, 1991). As greed is characterized by strong desires, it is likely that these desires beat willpower and lead to more impulsiveness, more temporal discounting, and less self-control. In addition, greed is often associated with increased risk taking and recklessness. For example, in the popular press it is often argued that one of the reasons for the financial crisis is that greedy bankers took too many unnecessary risks (Brummer, 2014; Papatheodorou, Rosselló, & Xiao, 2010). Therefore, dispositional greed should be related to less risk aversion (Holt & Laury, 2002).

Furthermore, our prototype analysis revealed that people often see greed as an antisocial trait (Seuntjens et al., 2015a); greedy people often do not care about the consequences of their behavior for others. If this is the case, dispositional greed should be positively related to antisocial behavior, such as psychopathy (Williams, Nathanson, & Paulhus, 2003) and psychological entitlement (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004), and negatively related to prosocial behavior such as empathy and perspective taking (Davis, 1980).

Lastly, because greedy people are never satisfied with their current state of affairs, it is likely that this affects their well-being in a negative way. This should also influence how happy they are with themselves (self-esteem: Rosenberg, 1965) and their satisfaction with life in general (Pavot & Diener, 1993). All these suggested associations are examined in Study 3.1.

## Overview of the current research

The current chapter took the discussed theoretical insights into the psychology of greed as a starting point to construct a valid and reliable scale that measures people's dispositional tendency to be greedy. We adopted the following strategy in developing the DGS. In Study 3.1, we developed a 7-item scale and determined its factorial structure, reliability, internal consistency, temporal stability, and construct validity. We used four different samples from the USA and the Netherlands, with a total of more than 6000 participants. Next, in Study 3.2, we took a closer look at the differences between dispositional greed and

materialism, because Study 3.1 found that materialism appeared empirically most related to greed. Then, we related dispositional greed to a variety of behavioral decisions. We examined how dispositional greed influences choice in a dictator game (Study 3.3) and in an ultimatum game (Study 3.4). In Study 3.5, we related the DGS to harvesting behavior in a forest management game (a resource dilemma). Overharvesting in such a game represents the Tragedy of the Commons (Hardin, 1968) and is argued to be one of the typical manifestations of greed.

## STUDY 3.1

### Method

Four samples completed the Dispositional Greed Scale and a number of other questionnaires (total $N = 6092$). The first sample completed the initial 20 items that we developed for the DGS. Based on Principal Components Analysis that we describe below, we came to the final 7-item version of the DGS (see Tables 3.1 and 3.2). All other samples completed this 7-item scale.

#### Sample 3.1.1

Participants were first year Tilburg University psychology students (autumn 2011) who filled out an on-line questionnaire at home, in return for course credit ($N = 167$, 82.0%, female, 18.0% male, $M_{age} = 19.25$, $SD = 3.16$). They did this during an annual testing session, called the "test week". Our main aims with the first sample were to create a scale, to test its internal consistency and temporal stability, and to investigate its discriminant and construct validity. Participants completed a first questionnaire with 20 items that were constructed to capture as many individual differences in greediness as possible (see Appendix 3.1). All items were based on our prototype analysis of greed (Seuntjens et al., 2015a), which revealed that "greed is the experience of desiring to acquire more and the dissatisfaction of never having enough" (p. 14). Responses were measured on a 5-point Likert-scale ranging from *1 = strongly disagree* to *5 = strongly agree*. With the 7-item DGS, we also tested temporal stability with a subsample of 59 participants who completed the DGS again, 20 to 50 days after the first administration. To test for discriminant and construct validity, we looked at the

relationship of greed with other measures that were administered during the "test week". Table 3.3 presents these measures.

### Sample 3.1.2

Participants were first year Tilburg University psychology students (autumn 2012) who filled out the on-line questionnaire in the lab in return for course credit ($N$ = 236, 69.9%, female, 19.9% male, 10.2% not specified, $M_{age}$ = 19.55, $SD$ = 2.15). This sample was also administered during the annual "test week" and DGS scores were related to a variety of other measures to test the discriminant and construct validity of the scale. For an overview of these measures, see Table 3.3. The main goal of the second sample was to replicate the factor structure of Sample 3.1.1 and to further test the reliability, temporal stability, and construct validity of the scale. Participants in this sample completed the 7-item DGS. Again, after two to three weeks, a subsample ($N$ = 101) completed the DGS a second time to investigate the temporal stability of the scale.

### Sample 3.1.3

Participants were U.S. based MTurk-workers who received $0.35 in return for their participation ($N$ = 345, 46.4% female, 53.6% male, $M_{age}$ = 33.26, $SD$ = 11.85). The main aim of Sample 3.1.3 was to replicate the findings of Samples 3.1.1 and 3.1.2 using a U.S. sample. We further investigated validity by relating the scale to other measures (see Table 3.3).

### Sample 3.1.4

Participants were members of the LISS panel,[12] a representative panel of the Dutch population ($N$ = 5344, 54.0% female, 46.0% male, $M_{age}$ = 50.50, $SD$ = 17.63). We wanted to investigate how greed is related to a variety of demographic variables (e.g., age, gender, income, education) in a representative sample of the Dutch population. We further established validity by relating dispositional greed to other measures (see Table 3.3).

[12] For more information about the LISS panel see www.lissdata.nl.

## Results

Our plan for the analyses was as follows. We started with an exploratory Principal Components Analysis (PCA) on the 20 items in the first sample, which resulted in the 7-item DGS. The latter three samples were used to confirm that the seven items that we retained in Sample 1 had the same factor structure. We used all four samples to assess the reliability and internal consistency of the scale. Samples 3.1.1 and 3.1.2 filled out the DGS at two points in time, which enabled us to assess temporal stability. All four samples filled out measures for other constructs, allowing us to examine the discriminant and construct validity of the scale. In addition, we had information about several demographic variables in Sample 3.1.4 providing us the opportunity to investigate how demographic variables such as age, gender, and income predicted dispositional greed.

### Principal Components Analysis

We conducted an exploratory PCA on the answers to the initial 20 items in Sample 3.1.1. The PCA suggested a solution with either one or three components (component 1: Eigenvalue = 4.95 with 24.72% variance explained; component 2: Eigenvalue = 2.04; 10.21%, component 3: Eigenvalue = 1.83; 9.15%). Inspection of the pattern matrix (see Appendix) shows that eight items were uniquely loading on the first factor. There were four items that were uniquely loading on the second factor, three items uniquely loading on the third factor, and four items loading on more than one factor (loadings > .30).

Inspection of the scree plot and the fact that the first component consisted of the items most related to the desire to acquire more and never being satisfied (which we consider to be the core of greed), led us to select the items that loaded high on the first component. From the original eight items we left out the one item that was reverse coded and scored lowest on this factor, which resulted in the selection of seven items. A PCA on these seven items resulted in a unidimensional solution with an eigenvalue of 3.41 that explained 48.71% of the variance. The reliability of this scale was good ($\alpha$ = .82). Samples 3.1.2, 3.1.3, and 3.1.4 were only asked to respond to these seven items. In all these samples,

the scale proved to be reliable (α ranged from .82 to .90) and retained the same factor structure (see Table 3.1).

### Internal consistency and temporal stability

Corrected item-total correlations were computed to investigate the internal consistency of the scale (see Table 3.2). Across all four samples, these ranged between .43 and .78, which indicates that all items have acceptable internal consistency (ITC > .30; see Nunnally & Bernstein, 1994).

The temporal stability of the scale was assessed in Samples 3.1.1 and 3.1.2, by computing correlations between scores at Time 1 and Time 2. The correlation between Time 1 and Time 2 was $r$ = .66 in the first sample, a satisfactory reliability.[13] In this sample the situation of administration was quite different (once at home and once in the university lab), which might have negatively influenced test-retest reliability. In Sample 3.1.2 the circumstances were more similar, as both measurements were administered in the same lab. For this sample we found a correlation of $r$ = .77 between Time 1 and Time 2.[14]

### Discriminant and construct validity

To investigate if dispositional greed is different from maximization, self-interest (measured with Social Value Orientation), envy, and materialism we conducted a series of confirmatory factor analyses (CFA). We tested whether a unidimensional model (where one factor would represent greed and the related construct) fitted the data better than a two-factor model (where greed and the other construct were represented by separate factors). If dispositional greed is different from the related constructs, the two-factor model would result in a better fit than a unidimensional model.

[13] When we controlled for the number of days between administration of the scale at Time 1 and Time 2 (ranging from 20 to 50 days) the temporal stability was .66.

[14] When we controlled for the number of days between administration of the scale at Time 1 and Time 2 (ranging from 12 to 25 days) the temporal stability was .76.

**Table 3.1.** The seven items of the Dispositional Greed Scale, including factor loadings and reliability in Study 3.1.

| | | Samples | | | |
|---|---|---|---|---|---|
| | | 3.1.1 | 3.1.2 | 3.1.3 | 3.1.4 |
| | Items | *N* = 167 Dutch Students | *N* = 236 Dutch Students | *N* = 345 American MTurk | *N* = 5344 Dutch Representative |
| 1 | I always want more. | .80 | .69 | .85 | .79 |
| 2 | Actually, I'm kind of greedy. | .65 | .73 | .80 | .79 |
| 3 | One can never have too much money. | .63 | .56 | .65 | .63 |
| 4 | As soon as I have acquired something I start to think about the next thing I want. | .62 | .76 | .82 | .83 |
| 5 | It doesn't matter how much I have. I'm never completely satisfied. | .71 | .71 | .85 | .79 |
| 6 | My life motto is 'more is better'. | .78 | .72 | .84 | .78 |
| 7 | I can't imagine having too many things. | .67 | .74 | .72 | .82 |
| Eigenvalue | | 3.41 | 3.46 | 4.39 | 4.22 |
| Explained variance | | 48.71% | 49.44% | 62.72% | 60.33% |
| Cronbach's $\alpha$ | | .82 | .82 | .90 | .88 |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on 5-point Likert-scales ranging from *1 = strongly disagree* to *5 = strongly agree*

**Table 3.2.** Means, standard deviations, and corrected item-total correlations of the items of the Dispositional Greed Scale in Study 3.1.

| | | Samples | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3.1.1 *N* = 167 | | | 3.1.2 *N* = 236 | | | 3.1.3 *N* = 345 | | | 3.1.4 *N* = 5344 | | |
| | Item | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* |
| 1 | I always want more. | 2.35 | 0.98 | .68 | 2.90 | 1.09 | .56 | 3.03 | 1.11 | .77 | 2.29 | 1.05 | .71 |
| 2 | Actually, I'm kind of greedy. | 2.92 | 1.02 | .52 | 2.67 | 1.04 | .61 | 2.62 | 1.16 | .71 | 2.06 | 0.99 | .70 |
| 3 | One can never have too much money. | 3.28 | 1.14 | .49 | 3.15 | 1.17 | .43 | 3.30 | 1.26 | .55 | 2.85 | 1.12 | .53 |
| 4 | As soon as I have acquired something I start to think about the next thing I want. | 2.66 | 1.11 | .49 | 2.39 | 1.07 | .63 | 2.76 | 1.20 | .73 | 1.90 | 0.95 | .74 |
| 5 | It doesn't matter how much I have. I'm never completely satisfied. | 1.98 | 1.04 | .57 | 1.89 | 0.87 | .57 | 2.56 | 1.18 | .77 | 1.63 | 0.82 | .69 |
| 6 | My life motto is 'more is better'. | 2.17 | 0.83 | .66 | 1.89 | 0.84 | .58 | 2.41 | 1.13 | .78 | 1.72 | 0.86 | .68 |
| 7 | I can't imagine having too many things. | 2.31 | 0.96 | .53 | 2.14 | 0.98 | .62 | 2.71 | 1.28 | .62 | 1.63 | 0.82 | .72 |
| | Total | 2.53 | 0.70 | | 2.43 | 0.71 | | 2.77 | 0.93 | | 2.01 | 0.73 | |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on a 5-items Likert-scale ranging from *1 = strongly disagree* to *5 = strongly agree*.

*Maximization.* Maximization and greed were measured in Samples 3.1.1, 3.1.2, and 3.1.3. In all three samples, the CFAs revealed that the two constructs were distinct. In all samples, the two-factor model fit better (had a significantly lower $\chi^2$) than a unidimensional scale, $\Delta\chi^2(1) \geq 21.74$, $p$s < .001.

*Self-interest.* Self-interest was measured in Samples 3.1.1 and 3.1.2. In both samples, the two-factor model fit better than a unidimensional scale, $\Delta\chi^2(1) \geq 294.96$, $p$s < .001. CFA for both samples indicated that the measure of greed is different from the measure of self-interest.

*Envy.* Envy was measured in Samples 3.1.1 and 3.1.2. In both samples, the two-factor model fit better than a unidimensional scale, $\Delta\chi^2(1) \geq 218.24$, $p$s < .001. CFA for both samples indicated that the measure of greed is different from the measure of envy.

*Materialism.* Materialism was measured in all four samples. In all samples, the two-factor model fit better than a unidimensional scale, $\Delta\chi^2(1) \geq 33.58$, $p$s < .001). CFA for all four samples indicated that the measure of greed is different from the measure of materialism.

The results of the CFAs provide first empirical evidence for the discriminant validity of greed. In the next section we report about the construct validity of greed and further test the discriminant validity of greed. A measure has good construct validity if it correlates with other constructs that one would expect based on the theory, and if it has no relationship with constructs that one would theoretically not expect it to be related to. The further examination of the discriminant validity investigated how greed correlated differently with the other constructs compared to maximization, self-interest, envy, and materialism. To accomplish these goals, we correlated the DGS to a variety of other measures (Table 3.3).

Although greed is different from maximization, self-interest, envy, and materialism (as was found in CFA), we expected that greed would correlate positively with these variables. This was indeed the case. We found that people

scoring high on greed are more likely to maximize, to be self-interested, to feel envious, and to be materialistic.

### Relations with other relevant constructs

Here we discuss the findings depicted in Table 3.3 concerning the relation of dispositional greed with a large number of constructs that are theoretically relevant. We expected dispositional greed to be associated with people's spending patterns. Some people easily spend money, whereas others are thrifty and experience pain when they have to spend (Rick et al., 2008). We expected and found that greedy individuals spend their money more easily, and more often are spendthrifts compared to tightwads.

We also included several measures related to impulsiveness, because we expected greedy individuals to be more impulsive. We found a negative correlation between dispositional greed and self-control and positive correlations between dispositional greed and impulsiveness and buying impulsiveness. This shows that greedy individuals are in general also more impulsive. Interestingly, there was no relationship between greed and temporal preferences (accepting higher future outcomes over lower current ones). This is strange as impulsiveness is a typical explanation of temporal preferences (Loewenstein & Elster, 1992).

To further differentiate between greed and maximization, we looked at the partial correlations of these constructs with (buying) impulsiveness and self-control. A difference between greed and maximization is that maximizers want to choose the best possible outcome, whereas greedy people just want more. This means that, whereas greed should correlate positively with (buying) impulsiveness, maximization should correlate negatively or not at all with impulsiveness. We found that if we controlled for dispositional greed, maximization was not associated with these constructs ($r$s < .10, $p$s > .135). Importantly, when we controlled for maximization, we still found significant correlations between greed and these constructs ($r$s > .18, $p$s < .006).

**Table 3.3.** Correlations of the Dispositional Greed Scale with other measures for Samples 3.1.1 to 3.1.4 in Study 3.1.

| Construct | | Samples | | | |
|---|---|---|---|---|---|
| | α | 3.1.1 *N* = 167 | 3.1.2 *N* = 236 | 3.1.3 *N* = 345 | 3.1.4 *N* = 5344 |
| Maximization Scale (Nenkov et al., 2008) | .43; .45; .55 | .29*** | .25*** | .35*** | |
| Social Value Orientation (Van Lange et al., 1997)[1] | .73; .69 | .21** | .17** | | |
| Dispositional Envy Scale (Smith et al., 1999) | .84; .80 | .34*** | .33** | | |
| Material Values Scale (Richins & Dawson, 1992; Richins, 2004)[2] | .71; .78; .88; .82 | .56*** | .64*** | .72*** | .69*** |
| Tightwads-spendthrifts Scale (Rick, Cryder, & Loewenstein, 2008)[3] | .80 | | | .36*** | |
| Self-Control Scale (Tangney, Baumeister, & Boone, 2004) | .74; .71 | -.26** | -.21** | | |
| Impulsiveness[7] (Eysenck, Pearson, Easting, & Allsopp, 1985)[4] | .85; .86 | .24** | | .32*** | |
| Buying Impulsiveness Scale (Rook & Fisher, 1995) | .95 | | | .46*** | |
| Temporal preferences (Mahajan & Tarozzi, 2011)[5] | | | -.09 | | |
| Risk aversion (Holt & Laury, 2002) | | | .04 | | |
| Psychological Entitlement Scale (Campbell et al., 2004) | .76 | .33*** | | | |
| Self-Report Psychopathy Scale (Williams et al., 2003) | .89; .90 | .32*** | .23** | | |
| Perspective taking - (Interpersonal Reactivity Index; Davis, 1980) | .78 | -.33*** | | | |
| Emphatic Concern - (Interpersonal Reactivity Index; Davis, 1980) | .66 | -.21** | | | |
| Rosenberg Self-Esteem Scale (Rosenberg, 1965) | .89; .89 | | -.21** | | -.23*** |
| Satisfaction With Life Scale (Pavot & Diener, 1993) | .79; .89 | | -.18** | | -.11*** |
| Beck Depression Inventory (Beck, 1967) | .84 | | .09 | | |
| Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999) | .83; .88 | .11 | | .38*** | |

| | | | | |
|---|---|---|---|---|
| Social desirability (Crowne & Marlowe, 1960) | .52 | | | -.24*** |
| Extraversion (TIPI: Gosling et al., 2003; IPIP: Goldberg, 1992)[6] | .87 | -.03 | .02 | -.03 |
| Agreeableness (TIPI: Gosling et al., 2003; IPIP: Goldberg, 1992) | .78 | -.11 | -.13* | -.24*** |
| Conscientiousness (TIPI: Gosling et al., 2003; IPIP: Goldberg, 1992) | .77 | -.12 | -.10 | -.22*** |
| Emotional Stability (TIPI: Gosling et al., 2003: IPIP; Goldberg, 1992) | .89 | -.17* | -.14* | -.27*** |
| Openness (TIPI: Gosling et al., 2003; IPIP: Goldberg, 1992) | .76 | -.22** | -.10 | -.02 |

*Note.* * $p < .05$; ** $p < .01$; *** $p < .001$. Correlations are only reported if the measure was in the sample.

[1] This measure consists of a sum score of the proself choices, with a higher score reflecting more proself choices. In Sample 3.1.2 we also measured social value orientation with the Social Value Orientation Slider (Murphy et al., 2011). The correlation between the two SVO measures was .53 ($p < .001$), and the correlation between the SVO slider and dispositional greed was .12 ($p = .07$).

[2] In Sample 3.1.1 we used nine items that loaded highest on the three components of materialism in the original paper; in the other samples we used the short version of the scale by Richins (2004).

[3] Higher scores reflect more spendthrift behavior.

[4] We used the nine items of the scale that loaded highest in the original paper.

[5] We used the first four choices used in the original paper. Participants made four decisions between €100 in one month and €100 (or €120, or €140, or €160) in four months. The measure consists of a sum score of the times the participant chose the option to wait for the higher amount. A higher score reflects more patience.

[6] In Samples 3.1 and 3.2 we measured the Big Five with the Ten Item Personality Inventory. In Sample 3.4 the Big Five was measured with the International Personality Item Pool. We only report the alphas of the IPIP. We do not report the alphas for the five dimensions of the TIPI, as the alphas of short scales that measure broad constructs, such as the TIPI, are not meaningful (Gosling et al., 2003).

Unexpectedly, we did not find a relationship between dispositional greed and risk taking. This is surprising because greed is often seen as an important factor for the risky behavior of bankers that ultimately led to the financial crisis. We return to these unexpected findings in the General Discussion.

Because greed is often related to interpersonal harm and antisocial behavior, we investigated the relationship between greed and several relevant measures. We found that dispositional greed is associated with more psychopathy, psychological entitlement, and with less empathy and less concern for others.

One of the characteristics of greed is dissatisfaction with one's current position. Hence, we expected that greedy individuals would score lower on measures related to well-being. Greed correlated negatively with self-esteem and life satisfaction, but we did not find a relationship between greed and depression.

We expected that social comparison would be related to envy, but not to greed. In Sample 3.1.1, we included all three measures and found a significant relation between envy and social comparison ($r = .34$, $p < .001$), but no relation between greed and social comparison. Unexpectedly, we did find a significant correlation between greed and social comparison in Sample 3.1.3.

Lastly, there were also measures concerning general dispositions included in our dataset that had been added by other researchers for purposes other than our study. In Samples 3.1.1 and 3.1.2 the TIPI (Gosling, Rentfrow, & Swann, 2003) was included to measure the Big Five, and in Sample 3.1.4 the IPIP (Goldberg, 1992) was included to do so. We found that in all three samples dispositional greed was associated with less emotional stability, and in two out of the three samples with a lesser agreeableness. Furthermore, in Sample 3.1.1 we found that dispositional greed was associated with less openness/intellect, and in our large Sample 3.1.4 we found that greed was associated with lower conscientiousness. We did not find a relationship between greed and extraversion.

### Sample 3.1.4: Demographics, desirability and financial behavior

The fact that the participants in our largest sample were members of the representative LISS panel allows for a number of additional analyses. We conducted a two-step multiple linear regression analysis to investigate what demographics were related to dispositional greed. In the first step we entered age and gender. In the second step we added income, education, political orientation, and religiousness. The results of these analyses can be found in Table 3.4. Younger people, males, people with a lower level of education, and people with a right-wing political orientation tended to be greedier. Income and religiosity did not relate to dispositional greed.

Sample 3.1.4 also allowed us to relate dispositional greed to the tendency to give social desirable answers, as this data was available in the panel. We found that people that have a tendency to give desirable answers score lower on greed. This makes sense, as greed is an undesirable trait. The correlation was $r = -.24$, $p < .001$, which means that social desirability explains about 6% of the variance in the DGS.

**Table 3.4.** Linear regression analyses of demographics on dispositional greed in Sample 3.1.4 of Study 3.1.

| Variable | *B* | *s.e.* | β | *t* | *p* |
|---|---|---|---|---|---|
| *Step 1* | | | | | |
| Age | -0.02 | .00 | -.37 | -24.09 | < .001 |
| Gender (0 = female; 1 = male) | 0.18 | .02 | .13 | 8.33 | < .001 |
| *Step 2* | | | | | |
| Income (net income per month in €'s) | 0.00 | .00 | -.00 | -0.11 | .913 |
| Education (1 = elementary school; 6 = university) | -0.02 | .01 | -.05 | -3.25 | .001 |
| Political orientation (0 = left; 10 = right) | 0.03 | .01 | .10 | 6.76 | < .001 |
| Religiosity (0 = not religious; 1 = religious) | -0.04 | .02 | -.03 | -1.87 | .062 |

As greed is often felt in the financial domain, we wanted to investigate how greed affects people's financial situation. Sample 3.1.4 gave us the opportunity to test how dispositional greed was related to their (perceived) financial situation. We expected and found that greedy individuals would be less satisfied with their financial situation, $r$ = -.17, $p$ < .001. In addition we found that they also indicated more often that they had problems with making ends meet, $r$ = .07, $p$ < .001.

### Discussion

Using four samples, and over 6000 participants, we developed a reliable, valid, and temporally stable 7-item scale to measure individual differences in greed. As expected, we found weak to moderate correlations between dispositional greed and the tendencies to be self-interested (SVO), to maximize, and to be envious, when we investigated the discriminant and construct validity of our scale. More remarkably were the high correlations between the DGS and MVS; we found correlations between .56 and .72, indicating that they share between 31% and 51% of the variance. Although we expected the two to be related, we did not expect the correlations to be this high. Whereas our DGS measures the general tendency to have insatiable desires to acquire more (Seuntjens et al., 2015a), materialism is defined as "the importance people attach to worldly possessions" (Belk, 1985, p. 265). Materialism should thus only be related to the specific desire to acquire more material possessions. The greed motive is broader and should predict other behaviors as well. In order to test this idea, and to further differentiate between greed and materialism, we conducted Study 3.2. After that, we report three studies that related greed to a variety of economic behaviors.

## STUDY 3.2

Study 3.1 found in four Confirmatory Factor Analyses that a model with separate factors for greed and materialism fit the data better than a one-factor model. Nevertheless, Study 3.1 also found substantial correlations between the DGS and the Material Values Scale (MVS; Richins, 2004). Therefore we thought it was worthwhile to obtain more insight into how greed and materialism relate to each other. We expected greed, and not materialism, to also predict desires for

non-material goods such as food and sex (Seuntjens et al., 2015a; Tickle, 2004). Study 3.2 was set up to examine this prediction.

## Method

MTurk workers ($N$ = 290, 57.2% male, 42.8% female,[15] $M_{age}$ = 30.43, $SD$ = 9.29) from the U.S. completed this study in return for $0.20. They were first asked to rate the four behavioral inclinations in Table 3.5 (1 = *strongly disagree,* 5 = *strongly agree*). These inclinations were: 1) When I am eating a bag of chips, I don't want to stop until the bag is finished; 2) When I am single, I like to have casual sex with as many people as possible; 3) When I am using social networking sites (e.g., Facebook, LinkedIn), I want to have as many friends as possible; and 4) When I see a newer model of my phone I immediately want to have it. Next they filled out the DGS ($M$ = 2.71, $SD$ = 0.89, $\alpha$ = .88) and the MVS ($M$ = 3.01, $SD$ = 0.78, $\alpha$ = .87) the order of which was randomized between participants.

## Results and discussion

The findings are shown in Table 3.5. We first replicated the Confirmatory Factor Analysis and found again that a model separating the DGS and the MVS fit better than a unidimensional model, $\Delta\chi^2(1) = 210.27$, $p < .001$. Next we computed correlations and partial correlations between greed and materialism and the four behavioral inclinations. We see that the DGS correlates with all four behavioral inclinations, and MVS with three of them. The more important test for differentiating the two constructs is how dispositional greed and materialism uniquely predict these four behaviors, controlling for each other. We can see that materialism was best at predicting the desire for a material good while dispositional greed better predicted the other three behavioral intentions.

[15] We tested for dispositional greed-gender interactions in Studies 3.2 to 3.5. We only found a significant interaction between dispositional greed and gender for Proposers in Study 3.3. A higher score on greed was associated with proposing lower offers in males, but not in females ($\beta$ = .51, $t(298) = 2.51$, $p$ = .012).

**Table 3.5.** (Partial) Correlations of greed and materialism with non-materialistic and materialistic desires in Study 3.2.

| | Descriptives | | Correlations | | Partial correlations | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | Greed (DGS) | Materialism (MVS) | Greed (DGS) | Materialism (MVS) |
| When I am eating a bag of chips, I don't want to stop until the bag is finished. | 2.89 | 1.21 | .19*** | .06 | .21*** | -.10 |
| When I am single, I like to have casual sex with as many people as possible. | 2.21 | 1.26 | .28*** | .15* | .24*** | -.05 |
| When I am using social networking sites (e.g., Facebook, LinkedIn), I want to have as many friends as possible. | 2.24 | 1.03 | .25*** | .25*** | .12* | .11 |
| When I see a newer model of my phone I immediately want to have it. | 2.49 | 1.21 | .35*** | .44*** | .08 | .30*** |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on 5-point Likert-scales ranging from 1 = *strongly disagree* to 5 = *strongly agree.*

Study 3.2 shows that whereas materialism is mostly associated with the desire for materialistic goods, greed is also associated with the desire for non-materialistic goods. Note that greed also correlated with the desire for the material good, but it is no surprise that the scale for materialism predicts better than dispositional greed does. A more specialized scale is likely to predict exactly materialistic behavior better than a broader scale does. We were surprised that materialism also correlated (even when not controlling for greed) with the preference for having many sex partners and many friends on social networking sites. These preferences are theoretically unrelated to materialism, but are empirically related to it. Perhaps the strong association of the materialism scale with what we now call dispositional greed could be a reason for these correlations. Another possibility is that materialism is actually related more to a desire for status than the definition implies. In any case, we found that the DSG was better at predicting the general desire for more than materialism.

The current study corroborates our expectations and unveiled more insights into the discriminant validity of the DGS. Materialism proved to be mostly associated with the desire for material goods, while greed was also associated with the desire for non-material goods. This indicates that greed is broader concept and involves the desire for more than just material goods, such as food, sex, and friends.

## STUDY 3.3

In the final three studies in this chapter, we examined the predictive validity of the DGS. Therefore, we related the DGS to behavioral decisions in a variety of experimental economic games, and we predicted that greed results in choices that ensure people of larger outcomes, even at the expense of other. In Study 3.3, we related dispositional greed to people's offers in a dictator game (Kahneman, Knetsch, & Thaler, 1986). The dictator game is a two-player game (in a strict sense it is not a game because it involves a single, unilateral decision) where one player (the dictator) gets to split a certain amount of money (e.g., $10) between him/herself and a second player (the receiver). The receiver has no say in the decision the dictator makes and is thus completely dependent on what the

dictator offers. The dictator is thus free to allocate as much to oneself as one desires (leaving nothing or only a little for the other), or opt for more fair allocations where the money is more evenly split. Typically, a dictator offers the receiver about 20% of the endowment (Camerer, 2003). Greed has been named as one of the motivations for dictators to give lower offers to the receiver (Haselhuhn & Mellers, 2005; Wang, Malhotra, & Murnighan, 2011). We examine whether dispositional greed predicts the behavior of the dictators in this game.

## Method

A total of 300 MTurk workers (61.0% male, 39.0% female, $M_{age}$ = 31.74, *SD* = 10.64) from the U.S. completed this study in return for $0.30. Participants first filled out the DGS (α = .88) and participated in an incentivized dictator game. Participants indicated how they would divide $10 between themselves and another person. At the end of the experiment, we randomly selected ten participants as dictators, paired them with ten other randomly selected participants, and paid both according to the proposed distribution. All participants knew this in advance.

## Results and discussion

The DGS had a mean score similar to our previous samples (*M* = 2.81, *SD* = 0.87). On average the dictators kept $6.31 (*SD* = 1.97) and gave $3.69 to the receiver. As expected, a regression analysis revealed that the more greedy an individual was, the more money they allocated to themselves in the Dictator Game, β = .24, $t(299) = 4.24$, $p < .001$, thereby creating more unfair offers that left less money for the other person. An individual who scored -1 *SD* on the DGS on average kept $5.84, whereas an individual who scored +1 *SD* on the DGS kept $6.77.

# STUDY 3.4

In Study 3.4, we related dispositional greed to people's behavioral intentions in an ultimatum game (Güth, Schmittberger, & Schwarze, 1982). Just as in the dictator game, greed is seen as one of the motivations behind proposing lower

bids in the ultimatum game (e.g., Hoffman, McCabe, & Smith, 1996). The ultimatum game is similar to the dictator game, with one important difference. Whereas in the dictator game the receiver has no influence whatsoever on the outcome of the negotiation, in the ultimatum game the responder can choose either to accept or reject the proposal. If a responder rejects the offer made by the proposer, both players receive nothing. If the responder accepts the offer of the proposer, both players receive the offer as it was made. The average offers are typically in the regions of 30–40%, with a 50–50 split often as the mode. Offers of less than 20% are frequently rejected (for an overview, see Camerer & Thaler, 1995). The fact that the responder can reject the offer makes the ultimatum game a clear case of strategic decision making. Proposers who want to get as much money as possible have to make a tradeoff between keeping as much money to themselves and the increased risk of rejection by the responder.

The aim of Study 3.4 was to investigate whether and how greed was related to behavior in an ultimatum game. In this study we used a strategy method (see Brandts & Charness, 2011) for studying decisions in the ultimatum game. This entails that we asked participants to provide binding decisions for each offer they could encounter in the negotiation. Similar to our expectations for the dictator game, we expected that in the ultimatum game greedy proposers would be more likely to propose unfair distributions favoring themselves, as they are focused on getting as much as possible for themselves. We did not have clear predictions for the effect of greed on the responders. On the one hand, one could argue that greedy responders should accept any offer made by the proposer because by rejecting unequal proposals they would end up with nothing. On the other hand, one could argue that greedy responders are more likely to reject unequal offers because they are less easily satisfied with the offer of the proposer.

## Method

A total of 603 MTurk workers (64.7% male, 35.3% female, $M_{age}$ = 29.42, *SD* = 9.93) from the United States completed this study in return for $0.30. Participants were randomly assigned to either being a proposer or a responder in an ultimatum game. Participants first filled out the DGS ($\alpha$ = .87). Afterwards

they participated in an ultimatum game. Participants in the Proposer condition ($N$ = 302) indicated how they would divide $10.00 between themselves and another person. Participants in the Responder condition ($N$ = 301) indicated for each possible proposal (stated in terms of integers) whether they would reject or accept this proposal (a $10.00-$0.00 split, a $9.00-$1.00 split, etc.). At the end of the study, participants were asked about the motivations that played a role when making their decision. Motivations about greed were measured by "I wanted to get the most money I could" and "I did not want to end up with no money at all" and motivations about fairness were measured by "I wanted a fair division of the money" and "I wanted an equal division of the money" (all on a 5-point scale ranging from 1 = *totally unimportant* to 5 = *totally important*).

## Results

### Proposers

Across all proposers, the mean score on dispositional greed was 2.85 (SD = 0.85). On average proposers indicated that they would propose to keep $5.36 ($SD$ = 0.97) to themselves, and give $4.64 to the responder. A regression analysis was conducted to investigate how greed was related to people's proposals in an ultimatum game. As expected, people scoring high on dispositional greed proposed offers in which they kept more money to themselves, $\beta$ = .19, $t(301)$ = 3.33, $p$ = .001. A person who scored -1$SD$ on the DGS on average proposed to keep $5.18 (and give $4.82), while a person who scored +1$SD$ on the DGS proposed to keep $5.54 (and give $4.46).

On average, proposers scored 3.44 ($SD$ = 0.94) on the greed motivation scale and 3.82 ($SD$ = 1.16) on the fairness motivation scale. We conducted a mediation analysis following the bootstrapping procedure of Preacher and Hayes (2008), using bias corrected intervals and 10000 samples. Figure 3.1 contains the standardized regression coefficients. The confidence intervals (CI) for both greed and fear did not include 0. This means that the effect of dispositional greed on the offer made to the responder was completely mediated by higher greed-driven motivations (95% CI: lower = .02, upper = .14) and lower fairness-driven motivations (95% CI: lower = .07, upper = .25).

### Responders

Across all responders, the mean score on dispositional greed was 2.85 (SD = 0.84). A total of 44 responders (14.6%) gave inconsistent answers in the Ultimatum Game, such as claiming that they would accept an offer in which the proposer would get $8 and they would get only $2 split, but would reject a $7 - $3 split. Because such data cannot be interpreted in terms of stable preferences for monetary divisions, these people had to be excluded from the analyses.[16]

On average, responders indicated that they would reject offers lower than $2.70 (*SD* = 1.85). A regression analysis was conducted to investigate how greed was related to people's responses in the ultimatum game. A regression analysis revealed that people who were greedier are less likely to accept low offers, $\beta = .13$, $t(256) = 2.07$, $p = .040$. A person scoring -1*SD* on the DGS accepted offers higher than $2.44 on average, whereas a person scoring +1*SD* on the DGS accepted only offers higher than $2.91 on average. More greedy individuals were thus more likely to reject lower offers.

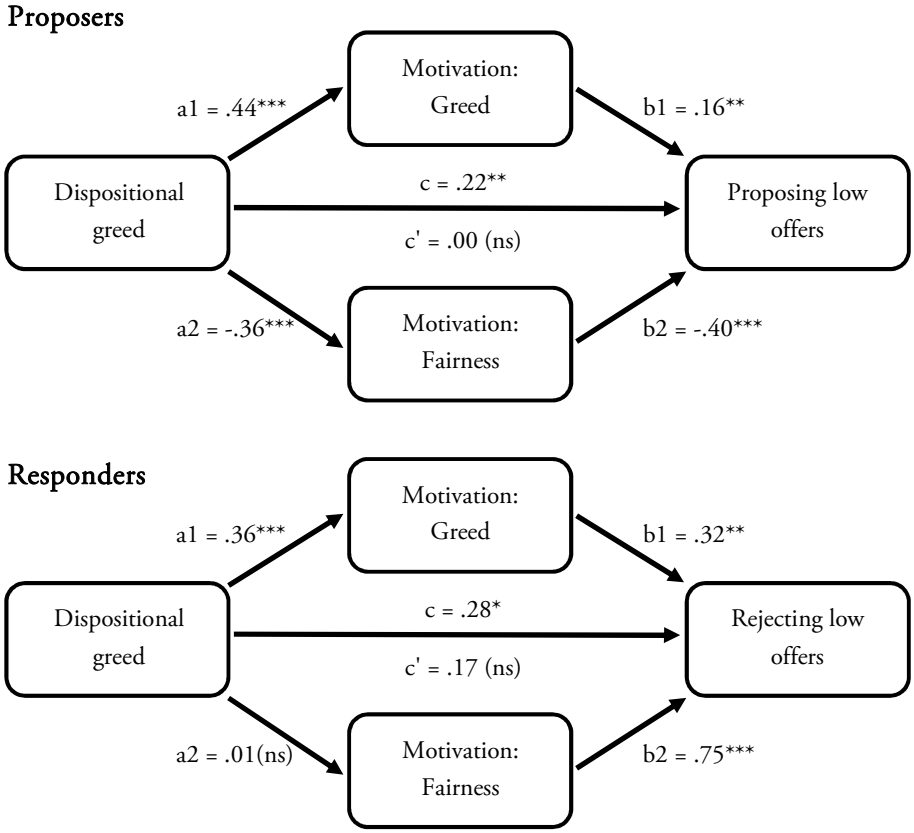
On average, responders scored 3.60 (*SD* = 0.98) on the greed motivation scale and 3.37 (*SD* = 1.16) on the fairness motivation scale. We conducted a mediation analysis to investigate how the motivations of greed and fairness influenced people's decisions to accept or reject offers. Results showed that the effect of dispositional greed on rejecting offers could be completely mediated by motivations of greed (95% CI: lower = .03, upper = .23), but not by motivations of fairness (95% CI: lower = -.14, upper = .12). See Figure 3.1 for a visual representation of the mediation analysis.

## STUDY 3.5

The Tragedy of the Commons (Hardin, 1968) is perhaps the most often used example of how greedy behavior can harm a society (Wilke, 1991). This tragedy describes the behavior of medieval herders in the UK. These herders had, besides their private parcel of land, a common parcel on which they could let their

[16] DGS is related to making inconsistent decisions, $b = .44$, $Wald = 4.84$, $p = .03$. There seems to be a slight tendency for greedier individuals to be more inconsistent in their responding.

livestock graze. From an individual perspective, letting one's livestock graze on these 'commons' was the most rational choice. Because all herders did this, it led to overgrazing, making these commons useless in the end. Also in modern times this tragedy takes place, for example, in the form of overfishing (Kraak, 2011) and environmental pollution (Good & Beatty, 2011). These situations in which there is a common resource or common pool and one's own interest and the interest of the group are conflicting, are also referred to as resource dilemmas.




* $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant.

**Figure 3.1.** *Mediation analysis of dispositional greed on proposing and rejecting offers in an ultimatum game in Study 3.4.*

The aim of Study 3.5 was to investigate if dispositional greed predicts people's harvesting behavior in a resource dilemma. We know from previous research that harvesting is related to social value orientation (Van Lange et al., 1997), and we thus examine the effect of greed in combination with that of SVO, so that we can estimate the relative impact of both. We used the forest-management game (Sheldon & McGregor, 2000), which is modeled after the Tragedy of the Commons.

## Method

Participants were 303 MTurk workers (56.9% male, 43.1% female, $M_{age}$ = 31.66, *SD* = 10.03) from the U.S. who received $0.30 in return for filling out the DGS, the SVO scale, and a one-shot resource dilemma.

Participants first played the forest-management game (Sheldon & McGregor, 2000) and then filled out the DGS (α = .90) and SVO scale. In this dilemma, participants imagine that they are owners of a timber company and that they bid against three other companies to harvest timber in the national forest. They receive information about both the advantages and disadvantages associated with either making small or large bids. Large bids are associated with more profit, but if the joint bids of all players are too high, this would lead to the forest being depleted (ruining future profit potential). After participants read the dilemma, they rated on a 7-point scale (1 = *not at all*, 7 = *very much*) the extent to which they would like to profit more than the other companies (referred to as *acquisitiveness* or *greed* by Sheldon & McGregor) and the extent to which they expected the other companies to cut large amounts of forest (referred to as *apprehensiveness* or *fear*). Then, participants indicated how much of the forest they wanted to cut themselves (ranging from 0 to 10 hectares). If participants would harvest more than five hectares, this would imply that they are overharvesting and are depleting the resources faster than they can regrow, causing the Tragedy of the Commons. For further details of the procedure, see Sheldon and McGregor (2000).

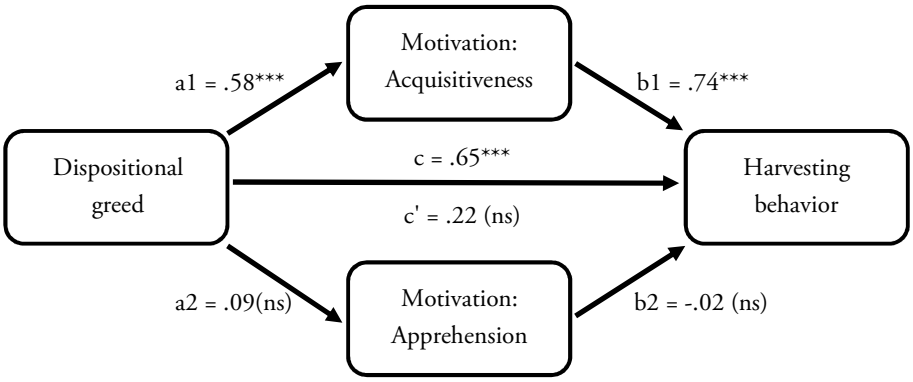
## Results and discussion

On average, participants indicated that they wanted to cut 5.63 (*SD* = 2.55) hectares of forest. The mean score for acquisitiveness motivation was 5.09 (*SD* = 1.48); the mean score for apprehensiveness motivation was 5.42 (*SD* = 1.56). The mean dispositional greed score was 2.79 (*SD* = 0.93). For SVO, we did not classify participants as either proself or prosocial, but rather used the number of self-interested choices made out of the possible nine answers.[17] On average, participants made 3.21 (*SD* = 3.91) self-interested choices.

A regression analysis in which harvesting was predicted by both the DGS and SVO revealed that the more greedy individuals were, the more forest they wanted to cut, $\beta = .20$, $t(302) = 3.52$, $p < .001$. For SVO we found a significant effect that the more self-interested individuals would cut more forest, $\beta = .12$, $t(302) = 2.09$, $p = .04$ . A person scoring -1*SD* on dispositional greed on average harvested 5.07 hectares of forest, whereas a person scoring +1*SD* on the DGS on average harvested 6.17 hectares of forest (controlling for SVO).

To validate the effects of the dispositional greed measure with the idea of Sheldon and McGregor (2000) that greed is an important motive in this forest harvesting game, we related the DGS to their motivational measure of why participants overharvested. A mediation analysis revealed that the effect of dispositional greed on harvesting could be completely mediated by the motivation of acquisitiveness ("the desire to obtain as much of the resource as possible for oneself", p. 388; 95% CI: lower = .29, upper = .63) and not by the motivation of apprehension ("the expectation that others will be trying to obtain as much as possible for themselves", p. 389; 95% CI: lower = -.04, upper = .02). See Figure 3.2 for a visual representation of the mediation analysis.

[17] The results are similar if we classify SVO dichotomously.




* $p$ <.05; ** $p$ <.01; ***$p$ <.001; ns = not significant.

**Figure 3.2.** *Mediation analysis of dispositional greed on harvesting behavior in Study 3.5.*

So, participants scoring high on greed take more from a common pool than less greedy individuals do. Interestingly, participants in general had a tendency to overharvest (the optimal amount of hectares on should harvest is 5, but in general people harvest more) but greedy individuals tended to overharvest even more. Greedy people are thus more likely to deplete a common resource. Furthermore, people who have greedy dispositions are more likely to overharvest due to acquisitiveness motivations, rather than due to the expectancy that others will overharvest.

## GENERAL DISCUSSION

This article reports on the development and validation of the Dispositional Greed Scale (DGS), a 7-item measure for individual differences in greed. Five studies with in total over 7500 participants from both the USA and The Netherlands established the reliability, construct validity, discriminant validity, and predictive validity of the DGS. Study 3.1 reported on four different samples. Dispositional greed was found to correlate with maximization, self-interest, envy, and materialism, all constructs that are often associated with greed. Confirmatory Factor Analyses showed that greed is also distinct from these four constructs. In addition, dispositional greed was associated with more spendthrift, more

impulsiveness (lower self-control; higher impulsivity; higher buying impulsivity), lower well-being (lower self-esteem; lower satisfaction with life), and having less concern for others (higher psychological entitlement; higher psychopathy; lower perspective taking; lower empathic concern).

Because dispositional greed was highly correlated with materialism in Study 3.1, we further assessed the differences between the two constructs in Study 3.2. We found that whereas materialism was more predictive of inclinations for material goods, greed was more predictive of inclinations for non-material goods such food, sex, and friends. Studies 3.3, 3.4, and 3.5 demonstrated that the DGS reliably predicts greedy behavior in economic dilemmas. We obtained this predictive validity in a dictator game, in an ultimatum game, and in a resource dilemma. Taken together, these findings suggest that the DGS captures individual differences in dispositional greed in a psychologically and behaviorally valid manner. Below, we will first summarize our findings and explain what we have learned about greed. In doing so, we explain what greed is, what greed is related to, and what greed does. We also discuss the moral character of greed. Finally, we point to promising lines for future research on the basis of our findings.

The studies presented here were needed to develop the DGS. But we believe they are also valuable beyond that purpose. These studies also teach us something about the psychology of greed. The pattern of correlations displayed in Table 3.3 provides insight into the nomological network of greed (Cronbach & Meehl, 1955). These correlations, especially when they are replicated in different samples, show lawful relations between greed and corresponding constructs. As such, they help us in finding out what greed precisely is and what it is not. Wang and Murnighan (2011) noted that empirical research on greed is scarce and a clear definition of greed is lacking. Seuntjens et al. (2015a) provide a definition based on an extensive prototype analysis that was the basis of the current DGS. The current findings corroborate this definition: *greed is the dissatisfaction of not having enough, combined with the desire to acquire more*.

Working from this definition, we can see how greed relates to other relevant constructs. In line with laymen's conceptions, classical economic theory, and previous theorizing (Lea et al., 1987; Seuntjens et al., 2015a; Wang & Murnighan, 2011), greed was associated with higher dispositional tendencies to maximize, to behave self-interestedly, to experience envy, and to be materialistic. So, our data are supportive of these earlier ideas. Let us now describe how we think greed is related to these four focal constructs.

In economic theory the axiom of greed is often referred to as the axiom of maximization (Lea et al., 1987), suggesting that people see greed and maximization as the same thing. Data from the first three samples in Study 3.1 revealed significant correlations between greed and maximization, but CFAs provided support for discriminant validity. The pattern of correlations of greed and maximization provides more insight in how these constructs differ. Greed was associated with more impulsiveness, while maximization was not. This makes sense; if a decision maker wants to maximize, impulsivity does not come in handy. Maximization is characterized by the motivation to make the best possible decision (Schwartz et al., 2002). Maximizers have to engage in elaborative decision processes. They have to weigh all possible alternatives and their outcomes (and take into account the associated probabilities) to find the best one. Impulsivity would stand in the way of that. Greedy people do not maximize, they just want more of things. And then impulsivity may prove its worth.

Greed is also related to self-interest. Greed results in people wanting more for themselves. As such it predicts similar tendencies as self-interest. Research on self-interest typically investigates how much value people place on their own outcomes and on the outcomes of others. Greed is unrelated to the outcomes of others because people only focus on their own need to acquire more. What did we find concerning the relation between these two constructs? Study 3.1 revealed significant correlations between the DGS and SVO (our measure of self-interest). Note, however, that these correlations were rather low. Moreover, the CFAs demonstrated the distinctness of these constructs. More discriminant validity was found in Study 3.5. Participants took part in a harvesting dilemma that was

modeled after the Tragedy of the Commons (Hardin, 1968). They had the role of owner of a timber company and had to decide how much to harvest in the national forest. Both greed and self-interest would lead decision makers to harvest more, creating the risk of collective overharvesting. We found that both greed and self-interest predicted this behavior independently.

The relation between envy and greed goes further than the fact that they are two of the seven deadly sins. Greed and envy both reflect dissatisfaction with one's current state, and the motivation to act on that dissatisfaction. A clear difference between the two is the intrinsically social nature of envy. Envy is felt when someone else has something valuable that I lack and want. Envy comprises an upward social comparison (Van de Ven et al., 2009). Greed in its pure form is individualistic. Greed is felt when one lacks and wants something valuable, irrespective of what others have. Our data again underscore the relation and distinctness. In Study 3.1 we find that dispositional envy and the DGS correlate significantly (Samples 3.1.1 and 3.1.3), but the CFAs show that they are distinct constructs. We also find that dispositional envy is related to social comparison in Sample 3.1.1 (replicating Zeelenberg & Pieters, 2007). In that sample, the DGS did not correlate with social comparison. In Sample 3.1.3 of Study 3.1 we did find a correlation between the DGS and social comparison, suggesting that greedy people may sometimes use social comparison to find out what they are missing.

Of all focal constructs, materialism was most closely related to greed. Although the theoretical relation between greed and materialism was not entirely clear, the relationship is intuitively plausible given that materialism refers to the extent to which people think the acquisition of material possessions is important (Belk, 1984; Pieters, 2013). In the domain of material possessions, greed will also lead to an increased desire to acquire possessions, which is suggestive of a relationship. Our prototype analysis also clearly pointed to such a relation (Seuntjens et al., 2015a). Across all samples in Study 3.1 and in Study 3.2, we found high correlations between materialism and greed. In all samples, we also found support for discriminant validity in the fact that the CFAs showed that

they were separate constructs. We designed Study 3.2 to obtain more insight in how greed and materialism are different. Whereas materialism appeared to be more specific to the domain of possessions, the desire present in greed appeared broader, extending to the domains of food, sex, and social relations. This finding corroborates early intuitions of Saint Paul, who argued that greed is not just a desire for more money, but is a more general tendency to desire more (Newhauser, 2000).

To summarize, the findings presented in this article did not only help us to answer the question what greed is, but also what greed is related to. The data clearly show that greed is related to and distinct from maximization, self-interest, envy, and materialism. These findings provide support for important ideas that were present in the literature, but never empirically tested. The findings also point to interesting avenues for future research. Before discussing these, however, let us address the moral character of greed.

As we explained in the Introduction, there are very pronounced and contrasting views with regard to the moral nature of greed, with some philosophers and religions condemning greed's negative consequences for other people and other philosophers and economists stressing greed's positive consequences for progress and the accumulation of wealth. Rather than arguing one of these positions to be more or less true, our data and definition of greed suggest an alternative possibility. This is that greed as a motivational state is in itself not intrinsically related to morality; it are the consequences of greed that can be qualified as more or less moral. This follows from the definition of greed as the dissatisfaction of not having enough, combined with the desire to acquire more. In situations where our behavior affects the outcomes of other people, such as in the economic games that we used in this article, greedily striving for more for oneself could easily lead to worse outcomes for the people around us. Indeed, it is especially because greed may be harmful to others that many religions and philosophers have condemned greed. However, in situations where no such interdependencies exist, greed can actually be beneficial. For example, in situations where huge amounts of effort are necessary in order to achieve

excellence, such as athletes striving to ever improve their performances, scientists striving to ever further our understanding of the world, or artists striving to achieve ever higher peaks of expression, greed may be productive. In addition, greed may lead individuals to create economic surplus because they aggregate more goods or wealth than they need. However, our definition of greed and its operationalization in the DGS are non-evaluative and remains mute with respect to the nature of the consequences, positive or negative. As such, we do not view greed as intrinsically moral or immoral.

## Future research on greed

In the course of data collection for the development and validation of the DGS we also encountered several interesting leads for future research. The first has to do with an unexpected result, namely the absence of a relationship between greed and risk taking in Study 3.1. After the financial crisis, the media often hinted at excessive greed in bankers as an explanation. The fact that we did not find that greedy people were more risk seeking could mean that these constructs are unrelated. But it could also mean that the relationship is more complicated than typically portrayed. From the perspective of the definition of greed given above, predictions about greed and risk could go in different directions. One possibility would be that greedy people's continual striving for more would make them more sensitive to the magnitude of outcomes and less to the associated probabilities, leading to more risk taking. However, one could also argue that greed's striving for more would make people choose the option that gives the most certain outcome to (temporarily) satiate this need, leading to more risk aversion. Another explanation is that there is a relationship between greed and risk that our study was not able to pick-up. We used the Holt and Laury (2002) measure of risk attitudes, which deals with personal gains and personal risks. It could be that that greed only leads to more risk-taking in situations where the gains are for the individual, but the losses are shared with a group of people (as is the case in the example with the bankers). In cases where risk is shared, personal gains by risky behavior become more attractive, especially to greedy people. Some

suggestions to this effect can be found in the results of the harvesting game, where the negative consequences of over-harvesting are shared among all participants.

A second suggestion for future research follows from extensions of the positive and negative consequences of greed. One evident extension would be to study how greed affects people's financial decision making. We found in Sample 3.1.3 of Study 3.1 that the disposition to be greedy was associated with spendthrift and (buying) impulsiveness. We also found in Sample 3.1.4 of Study 3.1 that greedy people were less satisfied with their financial situation and indicated problems with making ends meet. This relates to previous research that greed is often seen as a cause of debts (Livingstone & Lunt, 1992). It would be worthwhile to see whether greed as measured by the DGS relates to decisions to save, spend, and borrow. As a case in point, in a recent study of financial behavior in high-school students, we found dispositional greed to be related to more spending and less saving (Seuntjens, Van de Ven, Zeelenberg, & Van der Schors, 2016a). Another extension would be to see whether the seemingly insatiable need to acquire more in greed also relates to stronger goal striving, persistence, and enhanced performance. If feelings of greed imply that people always feel that they are below their reference point, then we could expect them to work more and harder than people who are more easily satisfied (e.g., Heath, Larrick, & Wu, 1999).

An interesting avenue for future research with respect to more negative behavior would be to relate greed to morally questionable behavior. For example, greed is often argued to be a cause of corruption (Rose-Ackerman, 1999), theft (Caudil, 1988), and fraud (Smith, 2003). As we argued before, these findings are most likely not due to any proclivity for negative behavior induced by greed, but rather by the myopic focus on wanting to acquire more. We recently started a research project exploring this possibility, finding that people high on dispositional greed had more accepting attitudes towards transgressions (e.g., lying in your own interest, and accepting bribes) and engaged more in corruption (Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2016c).

Future research could also focus on the observation that some groups of people appeared to score higher on dispositional greed than others. For example,

we found that younger people were greedier than older people. This finding could have to do with the observation that younger people tend to display more egocentrism than older people (cf. Elkind, 1967). But cohort effects could also cause it, with greed being more prevalent among those who grew up in a world where the emphasis on progress, social mobility, and personal development was larger (cf. Inglehart, 1997). We also found relationships between greed and levels of education and between greed and gender, but, interestingly, we did not find relationships with income or religiosity. The latter finding may be a bit surprising because most religions strongly condemn greed.

As a final suggestion, we think that an application of the DGS in other, preferably non-Western cultures would be interesting, not only to test for validity but also to test for potential differences in the endorsement of greed due to different economic systems. Previous studies reporting notable cross-cultural variation in behavior in economic games, like the ones we used in the current article (e.g., the ultimatum game), suggest that this is an interesting avenue for future research (Henrich et al., 2005).

## Concluding remarks

Greed is important. It features prominently as an explanation for both economic growth and economic crises, and is a major source of concern for most religions. But not all people are equally greedy. Like most psychological traits, individuals differ in the extent to which they are dissatisfied with what they have and in their drive to acquire more and more. This chapter presents the Dispositional Greed Scale, which captures those individual differences. We hope that this short, valid, and reliable scale will prove useful to other researchers, in furthering our understanding of greed and its role in human behavior.

**Appendix 3.1.** Pattern matrix of the factor analysis on the initial 20-item pool of the Dispositional Greed Scale.

| | | 1 | 2 | 3 |
|---|---|---|---|---|
| 1. | My life motto is: 'more is better'. | .77 | | |
| 2. | I always want more. | .72 | | |
| 3. | As soon as I have acquired something I start thinking about the next thing I want. | .68 | | |
| 4. | It doesn't matter how much I have, I'm never completely satisfied. | .66 | | |
| 5. | I can't imagine having too many things | .65 | | |
| 6. | One can never have too much money. | .61 | | |
| 7. | Actually, I'm kind of greedy. | .60 | | |
| 8. | If I have to choose between two products I rather buy them both. | .53 | .36 | |
| 9. | I'm satisfied with what I have. (R) | -.44 | | |
| 10. | I think that happiness is not about the possessions that you have. (R) | | | |
| 11. | I like to give. (R) | | .73 | |
| 12. | I'm a generous person. (R) | | .67 | |
| 13. | I prefer to spend my money on myself rather than on others. | | -.59 | |
| 14. | I prefer to buy too much instead of taking the risk to have not enough. | .34 | .50 | |
| 15. | I'm kind of stingy. | | -.42 | |
| 16. | As soon as I possess something, I don't want to lose it. | | | .72 |
| 17. | What is mine stays mine. | | | .69 |
| 18. | I think it's awful to lose my stuff. | | | .63 |
| 19. | I like to keep everything for myself. | | -.36 | .57 |
| 20. | I don't like sharing my possessions with others. | | -.47 | .55 |

*Note.* Entries are factor loadings after OBLIMIN rotation. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on a 5-point Likert-scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The first seven items were selected to form the Dispositional Greed Scale.

# PART II: WHAT GREED DOES…

# CHAPTER 4
## Greed and Adolescent Financial Behavior

*Financial problems in adolescents have increased over the last decades. We investigated if individual differences in greed relate to financial behavior. Greed is an important motive for economic behavior and refers to the tendency to never be satisfied and to always want more. We developed a short version of the Dispositional Greed Scale (Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2015b), which we then used in a large survey with adolescents (N = 3899). Dispositional greed is associated with them having more income, spending more, saving less, and having more debt. Identifying what personality characteristics influence financial behavior at a young age is important, as the financial habits that people learn during adolescence persist in adulthood. We find that greed has both positive effects (having a higher income), but also negative effects with the greedy saving less and borrowing more.*

This chapter is based on Seuntjens, T. G., Van de Ven, N., Zeelenberg, M., & Van der Schors, A. (2016). Greed and adolescent financial behavior. *Manuscript under revision.*

Financial problems in adolescents and young adults are common in Western countries. It has been argued that these problems have increased substantially over the last decades (Dwyer, McCloud, & Hodson, 2011; Hoeve et al., 2014). For example, credit card debt among young American adults increased with 104% in the period of 1992 to 2001 (Draut & Silva, 2004); 27% of the Dutch adolescents have debts other than study debts (Nibud, 2015); 32% of young Europeans indicate they have trouble making ends meet (Intrum Justitia, 2014); and 39% of the Dutch high school students indicate that they are sometimes or often short of money (Nibud, 2014). This development is worrisome, as previous research has found an association between being in problematic debt and the existence of mental problems and withdrawal of social interaction (Jenkins et al., 2008). In addition, financial problems are associated with lower academic performance (Scott, Lewis, & Lea, 2001). Arguably, engaging in social contact and academic performance are most important early in one's career and setbacks in those domains in adolescence are likely to have long term effects on personal development and employability.

Although demographic and standard economic variables explain a substantial amount of variance in financial problems, more factors account for differences in financial troubles (Lea, Webley, & Levine, 1993). Other research confirms these findings, factors such as financial attitudes and skills are good predictors for financial problems (Nibud, 2012). Research also suggests that some people are better in handling their financial situation than others. For example, students who are bad at delaying gratification are more likely to have credit card debts (Norvilitis & Merwin, 2006), people with self-control problems take greater financial risks and have more income shocks and unforeseen expenses (Gathergood, 2012), impulsive people have more expensive consumer credits and other types of debts (Gathergood & Weber, 2014; Nibud, 2015), and emotional stability, introversion, materialism, and the need for arousal are all positively associated with more credit card misuse (Pirog & Roberts, 2007; Watson, 2003). More recently, Xu, Beller, Roberts, and Brown (2015) found that conscientiousness and neuroticism are associated with more financial distress in young adults. There are thus quite some psychological processes that play an

important role in financial behavior. In the current research we aim to contribute to the understanding of psychological factors in financial behavior. Specifically, we focus on the psychology of greed. We investigate if individual differences in greed are predictive of financial behavior in adolescents.

## Greed

Greed is an important topic. Early scholars such as the Greek antiquity already wrote about greed, and also today greed is often discussed and debated (Robertson, 2001). Although greed is a popular topic and much is written about its causes and consequences, there is little empirical research actually investigating greed. Only in the last five years researchers have started to gain more interest in this topic and investigate what greed is and what greed does. This is visible from recent publications in various fields related to economic psychology, such as management (Gilliland & Anderson, 2011, 2014; Haynes, Campbell, & Hitt, 2014; Haynes, Hitt, & Campbell, 2015; Wang, Malhotra, & Murnighan, 2011; Wang & Murnighan, 2011), marketing (Krekels, 2015), and neuroscience (Mussel, Reiter, Osinsky, & Hewig, 2015).

One reason for the neglect of greed in empirical research is that there is no consensus on how to define greed (Wang & Murnighan, 2011). In order to deal with this problem, a prototype analysis was conducted to gain more insight into how people define greed (Seuntjens, Zeelenberg, Breugelmans, & Van de Ven, 2015a). Prototype analysis uses laypeople's conceptualizations of a construct to get a better idea of how to define and thus use that construct. The prototype analysis of greed revealed that greed is best defined as the "experience of desiring to acquire more and the dissatisfaction of never having enough" (p. 518), which thus is an insatiable desire for more of something.

This prototype analysis also found that people often associate greed with related constructs, such as maximization, materialism, and self-interest (Seuntjens et al., 2015a). However, theoretically one can argue that they are distinct constructs. In the case of materialism, this distinction lies in the types of things one wants to acquire. Materialism is typically defined at the extent to which

people value worldly possessions (Belk, 1984). Materialistic people thus find the acquisition of material goods important. Although greed also involves the acquisition of goods, it is less restricted towards the object one wants to acquire. Materialism centers on actual products that signal status or success (Richins & Dawson, 1992). Greed can also be felt towards nonmaterialistic desires, such as food, sex, or power (Seuntjens et al., 2015a).

The difference between greed and maximization lies in its end goal. Although both maximization and greed motivate people to attain their goal, the outcomes are not always the same. For a maximizer, the ultimate goal is to get the best outcome (Schwartz, Ward, Monterosso, Lyubomirsky, White, & Lehman, 2002). For a greedy person the ultimate goal is to get the most of a certain outcome. Thus, although greed and maximization might both motivate people's decisions, they do not necessarily lead to the same outcomes.

Lastly, greed is often confused and confounded with self-interest (Balot, 2001). In economic theory, self-interest pertains the idea that rational man should only care about his own outcomes and be indifferent about the outcomes of others (Miller, 1999). Indeed greed and self-interest might often disregard the consequences of others. However, the difference between the two is that self-interest should lead to rational outcomes, whereas this is not always the case for the outcomes of greed.

Greed is thus related, but different, from other motivations. Until recently, there was no means to assess individual differences in greed. However, recently the Dispositional Greed Scale by Seuntjens, Zeelenberg, Van de Ven, and Breugelmans (2015b) has been developed that measures greed as a stable personality trait. This scale is reliable, valid, stable over time, and scores on this scale predict behavior at a later moment (see also Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2016b). In the current research, we relate individual differences on the DGS to financial outcomes in adolescents.

Independently from the DGS three related scales have been developed to measure individual differences in greed (Veselka, Giammarco, & Vernon, 2014; Krekels & Pandelaere, 2015; Mussel et al., 2015). All these authors argue for stable individual differences in greediness and thus see greed as a disposition or trait. There are two main reasons why we selected to use the DGS. First and foremost, we were not aware of these other scales at the time we collected our data. Second, the DGS is firmly grounded in empirical work and its predictive validity is tested elaborately. This we will explain below.

The DGS (Seuntjens et al., 2015b) builds upon earlier findings from the prototype analysis (Seuntjens et al., 2015a), and sees dispositional greed as individual differences in the tendency to always want more and to never be satisfied. This scale with seven items about always wanting more and never having enough was constructed and validated by using over 7500 participants. The DGS has good internal consistency and is highly reliable. In addition, it has good face and construct validity. For example, dispositional greed correlates with related constructs such as maximization, dispositional envy, materialism, and self-interest. Importantly, it is also different from these constructs. For example, whereas materialism is focused on the acquisition of status goods, dispositional greed is a more general desire for more. Lastly, greed has good predictive validity. Dispositional greed predicts behavior in a variety of economic games. For example, it predicts how much people keep in a dictator game, how much they offer in an ultimatum game, and how much people take in a harvesting game. Even if self-interest is included, greed predicts how much people take above and beyond self-interest. In sum, greed is a stable trait that can be measured in a valid and reliable way by the DGS.

Dispositional differences in greed are also able to predict other types of behavior. For example, greed is often thought to lead to unethical behavior. And indeed people scoring high on dispositional greed tend to behave more unethically and find a variety of transgressions more acceptable (Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2016c). Greedy people are more easily lured into these unethical behaviors, because they have lower self-control as they

find the possible rewards so tempting. To summarize, dispositional greed is a stable personality variable that has been shown to predict various types of behavior.

## Greed and financial behavior

In the current research we relate greed to another type of behavior with which it is often associated. We look at how greed influences adolescents' financial outcomes. Greed is a universal motive in economic theorizing. One of the assumptions in economic theory is the axiom of maximization, also called the axiom of greed, which holds that "if A contains more of one good than B, and at least as much as B of all other goods, A will be preferred over B" (Lea, Tarpy, & Webley, 1987, p. 109). In other words, from a rational viewpoint, people should take as much as possible (Smith, 1776/1994). This will eventually not only benefit the actor, but is also thought to benefit society as a whole as it fuels economic growth (Greenfeld, 2001). On the other hand, greed is also often related to negative financial outcomes. People see greed as a cause of the financial crisis (Zandi, 2008) and see it as a potential cause of financial problems and debt (Lunt & Livingstone, 1991; Livingstone & Lunt, 1992). To the best of our knowledge, these assumptions have however not been tested directly, which is what we will do in the current study.

### Greed and income

Although there is a lot of theorizing about greed and its financial consequences, the empirical research on how greed affects people's financial outcomes is scarce and inconclusive. As greed is characterized by an insatiable desire for more, one would expect that greedy people at least want a higher income. Mussel et al. (2015) did indeed find that greedy people would like to have a higher income. However, this does of course not mean that they also are able to secure more income. Seuntjens et al. (2015b) did not find a relationship between greed and income. Van Muijen and Melse (2015) on the other hand, found that the relationship between greed and income is complex. Sometimes they found a positive relationship between greed and income, sometimes a negative relationship, and sometimes no relationship at all. They found no

relationship between greed and income for people under the age of 36 and a negative relationship for people older than 35. However, if they look at specific occupations they find that for some occupations greed pays of while for others it does not. For example, for sales managers they do find that greed is associated with more income. It thus seems that there has to be a fit between one's greed and occupation. For some types of occupations it might help to be greedy, whereas for others it seems to backfire.

Other research that suggests that there might be a link between greed and financial behavior has investigated the link between greed and overearning. Overearning is the tendency to give up on leisure and work and earn more than one can spent (Hsee, Zhang, Cai, & Zhang, 2013). Research suggests that greedy people are more likely to overearn (Seuntjens et al., 2016b). In this research, participants first had five minutes to earn chocolates, and then had five minutes to eat the chocolates that they earned. All left over chocolates were taken away by the experimenter. The more left over chocolates participants had to return, the more they overearned. Greedy participants worked harder, and as a result earned more. But they earned more than they could actually consume, resulting in more overearning. Even when participants had the opportunity to learn from overearning, and participated in the same study three weeks later (and thus knew how much they could or wanted to consume), greed at Time 1 predicted how much they would overearn at Time 2. This thus further illustrates the point that greed is a stable individual difference and shows that greedy people are more focused on the acquisition of resources. Related to this is research by Krekels (2015), who found that greedy people are more productivity oriented, which means that they are more focused on achievements and try to use their time more efficiently. Combined, these studies suggest that there likely is a link between greed and the motivation to acquire more income.

## Greed and spending

In the current research we are not only interested in how greed influences generating income, but also in how greed influences spending. Seuntjens et al. (2015b) related greed to a variety of individual measures during the scale

validation of the DGS. One of these measures was the Tightwads-Spendthrifts scale (Rick, Cryder, & Loewenstein, 2008). This scale measures the extent to which people find it painful to spend money. Tightwads experience high pain of paying, and ideally should spend more money. Spendthrifts experience little pain, and typically should spend less money. Greedy people typically tend more to the spendthrift side and thus often spend too much money. Moreover, greed was also positively related to the Buying Impulsiveness Scale (Rook & Fisher, 1995). This scale measures the extent to which people think and plan before they buy something. Based on these findings it is likely that greedy people spend more as they experience less pain of paying and are more impulsive.

### Greed, savings, and debt

If greedy people are more focused on generating income, but also more easily spend money, this raises the question if they have money left to save or if they typically fall short on money. Greed is both seen as a potential cause of wealth accumulation (Seuntjens et al. 2016b) and financial problems (Lunt & Livingstone, 1991; Livingstone & Lunt, 1992). Previous research found that greedy people are less satisfied with their financial situations and that they more often have problems making ends meet. This suggests that although people might generate more income, they likely spend even more, leading to more financial problems.

In sum, greed seems to be an important motive for economic behavior. On the one hand, greed is associated with generating more resources, which could lead to a higher income. On the other hand greed is expected to be related to spending more, which can cause financial problems such as saving less and having higher debt. Although the link between greed and financial problems is often assumed, it is, to the best of our knowledge, not been tested before with financial outcomes. Based on the reasoning above, we expected that dispositional greed would be associated with more income, but also with more expenses, less savings, and more debt.

## Greed and adolescent financial behavior

In addition to greed being a core economic construct, we think there is another important reason to focus on greed when studying the financial behavior of adolescents. Younger people tend to be greedier than older individuals (Seuntjens et al., 2015b). Research shows that children usually start to develop financial skills (e.g., saving) between the ages of six and twelve (Sonuga-Barke & Webley, 1993). Personality traits and financial behaviors acquired during adolescence and young adulthood are usually maintained during adulthood and thus influence financial decisions in the rest of life (Eccles, Ward, Goldsmith, & Arsal, 2013). For example, Ashby, Schoon, and Webley (2011) find that saving behavior at age 16 predicts saving behavior at age 34. Studying the relationship between greed and financial behavior in adolescents can thus give us insight in how greed is associated with positive financial outcomes such as generating more income, but also how greed is associated with negative financial outcomes in adolescents (spending too much, saving too little, and debts). Especially when the negative consequences of greed outweigh the positive consequences, having these insights is important and can help develop interventions that deal with the underlying causes of the undesired behavior.

Taken together, we expected that greed influences financial behavior, and would lead more income, but also to more troublesome financial outcomes. The relationship with these negative financial outcomes would especially be problematic for adolescents, because they tend to be greedier than older people and because early adopted behavior usually persists in adulthood. We report on a large scale survey with almost 4000 adolescents concerning their financial behaviors. We expected that dispositional greed would be associated with more income, more expenses, less savings, and more debt.

# STUDY 4.1

## Method

These data were collected by Nibud, the Dutch National Institute for Family Finance Information. They conducted a large survey study amongst high school students to assess their financial situation. The Nibud provided us the

opportunity to include items in this questionnaire in order to examine how individual differences in greed relate to the financial outcomes of these adolescents.

A total of 3899 high school students from different levels of education (ranging from preparatory lower-level vocational education to pre-university secondary education) completed the survey.[18] Mean age of the participants was 15.15 years[19] (*SD* = 1.64) and 65.2% of the participants was female. In return for their cooperation, five gift certificates of €50 were allotted.

Before we analyzed the data we inspected the data of the 3899 participants for extreme values, which are not uncommon in such large datasets. We removed scores of adolescents that indicated that they earned, spend, or saved more than €10.000 a month or said that they currently had more than €10.000 in debts.[20] We did this as these are very unlikely numbers for these adolescents and are therefore likely unreliable. This resulted in the exclusion of sixteen cases for expenses and two cases for debts. Because there were still several extreme values, we did an outlier analysis and excluded cases that scored more than 3 *SD* above the mean (income: 39 cases; expenses: 37 cases; savings: 7 cases; debts: 12 cases).

## The Dispositional Greed Scale

Individual differences in greed were assessed using the Dispositional Greed Scale (DGS) (Seuntjens et al., 2015b). The original scale consists of seven items. Because of a constraint on the number of items in the survey, we could only include three items of the DGS. On the basis of theoretical considerations and

[18] In total there were 7888 high school students that started the questionnaire. A total of 3986 did not complete the survey and were removed from the analyses. In addition, we removed three other students that clearly did not fill out the questionnaire seriously (based on their responses to open-ended questions). This left us with the final sample of 3899 students. The completion rate is 49.4%, which is typical for surveys including adolescents (see for example Caskey, Lindau, & Alexander, 2009).

[19] Participants indicated their age, with those under 12 years old choosing the option "under 12" and those older than 18 years choosing "older than 18". For ease of analysis, responses were recoded to a continuous scale ranging from 11 (participants that indicated that they were younger than 12; 0.3%) to 19 (participants that indicated that they were older than 18; 2.0%).

[20] Note that participants are high school students and cannot have study debt yet.

statistical analyses we created a 3-item version that comprises of the items: "Actually, I'm kind of greedy", "I always want more", and "As soon as I have acquired something I start to think about the next thing I want". In the Appendix we present a reanalysis of the data of Seuntjens et al (2015b) for the 3-item version of the DGS. We perform the same tests as we did with the original seven items, but now with the 3-item version. The 3-item Dispositional Greed Scale produces similar results and has good reliability, temporal stability, and validity.

The 3-item scale also turns out to perform well in the dataset used for the analyses in this research. It is unidimensional and Principal Components Analysis shows that it explains 74.67% of the variance (Eigenvalue = 2.24). On average, participants score 2.41 (*SD* = 0.99) on this scale that ranges from 1 to 5. Internal consistency and reliability of the scale were good (ITC > .60; α = .83). See Table 4.1 for an overview of the scale properties.

### Financial indicators

We use four indicators for the financial behavior of the adolescents. Both the income and expenses measure consisted of multiple types of income or expenses. We chose to combine the different types of income or expenses, as previous research suggests that broad constructs (such as dispositional greed) are better at predicting comprehensive behavior than single types of behavior (Weigel & Newman, 1976).

**Table 4.1.** Properties of the 3-item Dispositional Greed Scale.

| | | Loading | *M* | *SD* | *ITC* |
|---|---|---|---|---|---|
| 1. | I always want more. | .86 | 2.50 | 1.12 | .68 |
| 2. | Actually, I'm kind of greedy. | .90 | 2.48 | 1.15 | .75 |
| 3. | As soon as I have acquired something I start to think about the next thing I want. | .83 | 2.25 | 1.16 | .64 |
| | Total | | 2.40 | 0.99 | |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses are measured on 5-point Likert-scales ranging from 1 = *strongly disagree* to 5 = *strongly agree.* A factor analysis produces a one factor solution that explains 74.67% of the variance (Eigenvalue is 2.24). The 3-item scale is reliable (α = .83)

*Income per month.* The income measure consisted of the sum of how much money participants received from their parents (pocket money and clothing allowance), the income they earned with jobs, and other monthly income. Mean monthly income was €81.62 (*SD* = €83.43).

*Expenses per month.* The expenses measure consisted of the sum of a variety of expenses on several categories (food and drinks, clothing and shoes, personal hygiene, jewelry and accessories, recreation, going out, alcohol, smoking, online games, paid apps, computer and computer accessories, books and magazines, subscription for magazines, music and movies, mobile phone, insurance, contribution for sports/instruments, other hobbies, bicycle/moped/car, public transport, presents, school supplies and books, accessories for room, charity, pets, and other expenses). Mean expenses were €97.68 (*SD* = €101.67).[21]

*Savings per month.* The savings measure consisted of the question how much participants saved per month. Mean savings were €37.39 (*SD* = €52.74). A substantial amount of participants indicated that they did not save any money each month (17.7%). For participants that did save money each month, the average was €45.45 (*SD* = €54.91).

*Total debt.* The debts measure consisted of the question how much debt participants had at the moment. Because these high school students are not allowed to take out loans yet, debt was measured as the amount of money they had borrowed from family or friends. On average, participants had outstanding debts of €3.66 (*SD* = 31.48). Most participants indicated that they did not have debts (89.9%). For participants that indicated they had borrowed money the mean debt was €36.32 (*SD* = €93.15).

[21] Note that expenses are in general higher than income. In the analyses we focus on the effects of greed on income and expenses separately from each other and given that we are mainly interested in whether changes in greed would predict changes in income or expenses, we do not think it is problematic. However, it does signal that the actual estimates of financial behavior are unlikely to be completely accurate.

### Statistical analyses

There are several ways to model the data in this study. One could make one joint model in which greed predicts all four financial indicators or one could do separate analyses for all financial indicators. We chose the latter approach for two reasons. First, not all financial indicators are measured in the same magnitude. Income, expenses, and savings are measured per month, whereas debt is the total outstanding debt. Second, we are interested in whether greed relates to these financial outcomes, not in the exact estimate of the effect of for example scoring a scale point higher on greed on how much additional euro of income that would generate. Note that expenses are higher than income in the current data, which suggests that the estimates are not completely accurate. It is possible that adolescents forget to report some of the income they receive, or report expenses that are actually paid by their parents (for example, they might not have reported money received to buy food at school as income, but did report those expenses). Third, there are large differences in the distributions between the four indicators, which leads to different tests being more appropriate for different financial indicators (as we explain below).

To investigate the relationship between greed and income and expenses we conducted linear regression analyses. As is often the case with monetary data, the data for income and expenses was positively skewed. In order to deal with the skewedness, we conducted log-transformations to normalize the data.[22] Because the data of savings and debt was strongly censored (with many respondents indicating to either not to save or not to have debts) a Tobit regression was most appropriate. Tobit is useful in these cases, as linear regression analysis will lead to biased coefficients. To further investigate the relationship between greed and monthly savings and total debt, we conducted logistic regression analyses to see whether greed predicted if people saved or had debt at all (yes or no), and if this was the case, we investigated if greed predicted the amount of savings and debt

[22] We find similar patterns if we do not transform the data.

using linear regression analyses.[23] Based on these considerations we chose to analyze the effects of greed on each of the four indicators separately.

## Results

Table 4.2 provides an overview of the descriptive statistics and zero-order correlations between dispositional greed, the financial indicators, age, and gender. Linear regression analyses tested the relationship between dispositional greed and income and expenses per month. As Table 4.3 shows, dispositional greed was significantly related to having more income (β = .10) and to spending more money (β = .18).[24] Because the data for savings per month and total debt was censored (17.7% of the participants indicated that they saved €0 per month; 89.9% of the participants indicated they had €0 debt), we analyzed these variables with Tobit regression analyses. Participants scoring high on dispositional greed had significantly less savings per month (β = -.09), and a higher total debt (β = .20).[25]

To further explore the relationship between dispositional greed and savings per month and total debt we conducted binary logistic regression analyses to see if greed predicts whether adolescents are more likely to save and have debts and linear regression analyses to investigate how high their savings per month and total debt are (given that they save and have debts in the first place). Dispositional greed predicted if people saved money each month, odds ratio = 0.68, *Wald* = 55.33, $p < .001$. As an indication of the effect size, this implies that an increase of 1 point on the Dispositional Greed Scale (which is also approximately +1 SD) results in a 47% decrease in the odds that someone saves money each month. However, for those who save, dispositional greed did not predict how much people saved per month, $b = 0.01$, β = .01, $t = 0.53$, $p = .597$.

[23] Again, we conducted log transformations to normalize the data.

[24] If we also include income as a covariate, we find similar results.

[25] If we also include income and expenses as covariates, we find similar results.

**Table 4.2.** Descriptive statistics and bivariate correlations in Study 4.1.

| | | *N* | *% yes* | *Mdn* | *M* | *SD* | 1. | 2. | 3. | 4. | 5. | 6. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Dispositional greed | 3899 | - | 2.33 | 2.41 | 0.99 | - | | | | | |
| 2. | Income per month | 3716 | - | 60.82 | 81.62 | 83.43 | .12*** | - | | | | |
| 3. | Expenses per month | 3707 | - | 69.40 | 97.68 | 101.67 | .19*** | .51*** | - | | | |
| 4. | Savings | 2568 | 82.3% | 25.00 | 45.45[1] | 54.91 | -.11*** | .14*** | .11*** | - | | |
| 5. | Debts | 3575 | 10.1% | 6.40 | 36.32[2] | 93.15 | .12*** | .03* | .10*** | -.05 | - | |
| 6. | Age | 3899 | - | 15.00 | 15.15 | 1.64 | .04* | .42*** | .38*** | .27*** | .01 | - |
| 7. | Gender | 3899 | - | 0.00 | 0.35 | 0.48 | .02 | -.04* | -.01 | .04** | .01 | -.05** |

*Note.* Correlation is significant at the (***) .001 level, (**) .01 level, or (*) .05 level. Gender was coded as a dummy variable with 0 = female and 1 = male. Correlations are computed with log-transformed variables. If we run the analyses on the untransformed data we find a similar pattern.

[1] If we include participants who do not save each month average savings are *Mdn* = 20.00, *M* = 37.39, *SD* = 52.74.

[2] If we include participants who do not have debts average debts are *Mdn* = 0.00, *M* = 3.66, *SD* = 31.48.

**Table 4.3.** Linear regression analyses of income per month and expenses per month on dispositional greed and Tobit regression analyses of savings per month, and total debt on dispositional greed (controlled for age and gender).

| | Income per month | | | | | Expenses per month | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *b* | *s.e.* | β | *t* | *p* | *b* | *s.e.* | β | *t* | *p* |
| Dispositional greed | 0.10 | 0.01 | .11 | 7.42 | < .001 | 0.21 | 0.02 | .18 | 11.80 | < .001 |
| Age | 0.23 | 0.01 | .41 | 27.83 | < .001 | 0.27 | 0.01 | .38 | 25.16 | < .001 |
| Gender | -0.03 | 0.03 | -.02 | -1.13 | .260 | 0.01 | 0.04 | .00 | 0.20 | .842 |
| | Savings per month | | | | | Total debt | | | | |
| | *b* | *s.e.* | β | *t* | *p* | *b* | *s.e.* | β | *t* | *p* |
| Dispositional greed | -4.97 | 1.17 | -.09 | -4.25 | < .001 | 24.87 | 3.70 | .20 | 6.72 | < .001 |
| Age | 12.01 | 0.69 | .21 | 17.45 | < .001 | -0.72 | 2.23 | -.01 | -0.32 | .746 |
| Gender | 9.58 | 2.39 | .17 | 4.00 | < .001 | 2.97 | 7.56 | .02 | 0.39 | .694 |

*Note:* Linear regression analyses are conducted on the transformed variables.

The second binary logistic regression analysis found that dispositional greed also predicted if people had a debt or not, odds ratio = 1.47, *Wald* = 48.39, $p < .001$. Thus, an increase of 1 point on the Dispositional Greed Scale resulted in a 47% increase in the odds of having debts. For people who did have a debt, it also predicted how high that debt was, $b = 0.16$, $\beta = .11$, $t = 2.14$, $p = .033$.

# GENERAL DISCUSSION

The aim of the current research was to investigate the relationship between adolescents' financial behavior and dispositional greed. In order to investigate this, we first constructed a shortened, 3-item version of the Dispositional Greed Scale. Then we related this 3-item Dispositional Greed Scale to four financial indicators. We found that adolescents who scored higher on dispositional greed had more expenses, were less likely to save, and had more debt. On the bright side, dispositional greedy adolescents also have a higher income.

## Implications for understanding adolescent financial behavior

Understanding adolescent financial behavior is important. The personality traits and behaviors that people acquire during adolescence often persist in adulthood and thus have important consequences for the rest of life (Eccles et al., 2013). Although previous research suggests a relationship between greed and financial behavior (Lunt & Livingstone, 1991; Seuntjens et al., 2015b, 2016b), this is, to our knowledge, the first study that actually investigated the relationship between greed and actual financial outcomes in adolescents.

In the current research we found that greed was associated with positive financial outcomes on the one hand (more income), and negative financial outcomes on the other hand (more expenses, less savings, more debt). Although the data is cross-sectional, which makes drawing strong conclusions about causality difficult, there is quite some past research (Seuntjens et al., 2015b, 2016b) that shows that dispositional greed is a stable personality trait. Theoretically, it thus makes sense to interpret the data that the stable personality trait (greed) predicts behavior (the financial outcomes).

We found that greedy adolescents had a higher income than less greedy adolescents. The income measure consisted of pocket money, clothing allowance, and their own generated outcome from side jobs. One could argue that people that are greedy also share this priority with their children, and as a result their children likely become greedier. However, previous studies have consistently found that people that are brought up in low socioeconomic environments are actually greedier than people that grew up in families with high socioeconomic status (SES) (Krekels, 2015; Poluektova, Efremova, & Breugelmans, 2015). It is argued that people develop the dispositional tendency to be greedy to deal with the resource scarcity and uncertainty that is associated with low SES. Based on this reasoning one would predict that if adolescents' greed is formed based on their family situation, adolescents with high income (who are more likely to come from wealthy families) would be less greedy. However we do not find this. We believe this suggests that greedy adolescents might receive more pocket money and clothing allowance because they ask for more, and hence adolescents that are greedy generate more income in this way. These findings corroborate earlier findings that have found that greedy people work harder and are more focused on acquisition of resources (Seuntjens et al., 2016b).

Despite dispositional greed being associated with more income, the other three financial indicators show the more problematic effects of greed. People often associate greed with negative financial outcomes (Lunt & Livingstone, 1991). In line with this reasoning and our expectations, we found that greed was indeed associated with spending more per month, being less likely to save, and having a higher debt. Previous research (Seuntjens et al., 2015b) suggests that greedy people have more problems making ends meet, and that greedy individuals are more impulsive and have lower self-control (characteristics that have previously been related to all types of financial problems; Gathergood, 2012; Gathergood & Weber, 2014). It seems that greedy adolescents' tendencies to choose short term pleasure over beneficial long term consequences makes them more likely to get into financial troubles.

Individuals' financial situation is thus both positively and negatively influenced by their disposition to be greedy. Although the effects of greed on financial behavior might be small, they can have large consequences over a life time. Although we should interpret the exact numbers with care, as they are based on self-report data that does not seem fully accurate, we do see that dispositional greed has effects that are quite serious. For example, if we look at expenses, we see that, in our sample, a 15 year old male scoring *-1SD* on the DGS spends an estimated average of €85.29 euros a month, whereas adolescents with the same age and gender who score *+1SD* on the DGS spend an estimated average of €116.27 per month. Assuming that the same trend persists in adulthood, and individuals earn more as adults, this means that greedy individuals will spend thousands of euros more per year than less greedy individuals. Especially for the negative consequences of greed, in this case spending more, being less likely to save, and having more debts, it is thus important to identify which people are at risk.

Previous research suggests that the disposition to be greedy is formed at an early age (Krekels, 2015). According to Krekels, a possible explanation for the development of greed is that it helps people deal with resource uncertainty. In addition, younger people tend to be greedier than older people (Seuntjens et al., 2015b). Thus, younger people seem more likely to get into trouble because of their greediness. Knowing that especially greedy people are more likely to get into financial trouble can help with the prevention of financial problems, as it gives the opportunity to target those people for intervention programs.

## Implications for greed research

Our research thus shows a duality in the consequences of greed. On the one hand we find that greed is associated with positive outcomes (generating more income), while on the other hand we find that greed is associated with negative outcomes (having more expenses, being less likely to save, having more debts). The idea that greed is ambivalent is common. Early scholars such as Thucydides (460–395 BCE) argued that greed can be both positive and negative (Zagorin, 2009). Furthermore, Hume (1739/2001) called greed a double-edged sword, as

it can motivate people to attain their goals, but also can have destructive consequences for society. Typically the duality in consequences of greed is depicted as positive consequences for the individual and negative consequences for others surrounding the greedy individual. An interesting finding of the present research is that the duality in greed also exists at the intra-individual level, meaning that greed can have positive and negative consequences for the same individual.

For the current research we constructed a reliable and valid shortened version of the DGS. Having a 3-item version of the DGS can be useful in situations where there are time limits, restraints on the number of questions, or when greed is not the main focus of the research. We refer again to the Appendix for the re-analysis of the original data to demonstrate the validity and reliability of this short version of the Dispositional Greed Scale.

## Conclusion

Greed is often seen as an important motive for economic behavior. In this research we found that individual differences in greed predicted adolescents' financial behavior. Dispositional greed was associated with generating more income, but also with more expenses, less savings, and higher debt. In line with common conceptions about greed, this research thus found that greed can have positive as well as negative consequences for financial behavior.

**Appendix 4.1.** Re-analysis of the data of Chapter 3 with the 3-item Dispositional Greed Scale.

In this appendix we describe how we came from our 7-item Dispositional Greed Scale—DGS (Seuntjens et al., 2015b) to the 3-item version that we used in this research. The reason for this shortening was that the NIBUD (the organization that allowed us to include questions in their survey) only allowed us to include three additional questions. We came to the three items on the basis of theoretical reasons (in our view these items capture the core of greed best, cf. Seuntjens et al., 2015a), and statistical reasons. These latter are reported below.

To investigate if the shortened 3-item version of the DGS worked correctly we reanalyzed all the data in our original scale construction paper (Seuntjens et al., 2015b). As is apparent from Table A1 and A2 in this Appendix, the three items together form a unidimensional scale with good reliability, internal consistency, and temporal stability (see Tables A1 and A2). In Table A3 and A4 we find that the 3-item version of the DGS has similar construct validity than the original scale. Table A5 shows that, as the 7-item DGS, the 3-item version of the DGS is different from materialism. Lastly, in Table A6 we find that the 3-item DGS predicted behavior in a similar way than the 7-item version. The three item DGS predicted how much money people kept for themselves in a dictator game and an ultimatum game. We also found a marginal significant trend for greedy people rejecting lower offers more. Lastly, we found that greed predicted how much forest participants harvested in a harvesting game.

**Table A4.1.** *Re-analysis: The three items of the Dispositional Greed Scale, including factor loadings and reliability for Samples 3.1.1 to 3.4.1 in Study 3.1.*

| | | Samples | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| | | *N* = 167 | *N* = 236 | *N* = 345 | *N* = 5344 |
| | | Dutch | Dutch | American | Dutch |
| | Items | Students | Students | MTurk | Representative |
| 1. | I always want more. | .78 | .82 | .90 | .88 |
| 2. | Actually, I'm kind of greedy. | .72 | .83 | .87 | .89 |
| 3. | As soon as I have acquired something I start to think about the next thing I want. | .81 | .83 | .85 | .85 |
| Eigenvalue | | 1.78 | 2.04 | 2.23 | 2.28 |
| Explained variance | | 59.40% | 68.11% | 76.26% | 76.06% |
| Cronbach's $\alpha$ | | .65 | .77 | .84 | .84 |
| Temporal stability | | .72 | .79 | - | - |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on 5-point Likert-scales ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

**Table A4.2.** *Re-analysis: Means, standard deviations, and corrected item-total correlations of the items of the 3-item Dispositional Greed Scale for Samples 3.1.1 to 3.1.4 in Study 3.1.*

| | | Samples | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | | 2 | | | 3 | | | 4 | | |
| | | *N* = 167 | | | *N* = 236 | | | *N* = 345 | | | *N* = 5344 | | |
| | Item | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* | *M* | *SD* | *ITC* |
| 1. | I always want more. | 2.35 | 0.98 | .51 | 2.90 | 1.09 | .60 | 3.03 | 1.11 | .76 | 2.29 | 1.05 | .72 |
| 2. | Actually, I'm kind of greedy. | 2.92 | 1.02 | .47 | 2.66 | 1.04 | .60 | 2.62 | 1.16 | .69 | 2.06 | 0.99 | .74 |
| 3. | As soon as I have acquired something I start to think about the next thing I want. | 2.66 | 1.11 | .42 | 2.37 | 1.06 | .60 | 2.76 | 1.20 | .68 | 1.90 | 0.95 | .67 |
| | Total | 2.65 | 0.80 | | 2.64 | 0.88 | | 2.80 | 1.01 | | 2.08 | 0.87 | |

*Note*. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on a 5-items Likert-scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*

**Table A4.3.** *Re-analysis: Correlations of the 3-item Dispositional Greed Scale with other measures for Samples 3.1.1 to 3.1.4 in Study 3.1.*

| Construct | Samples | | | |
|---|---|---|---|---|
| | 3.1.1 *N* = 167 | 3.1.2 *N* = 236 | 3.1.3 *N* = 345 | 3.1.4 *N* = 5344 |
| Maximization Scale | .22** | .22** | .34*** | |
| Social Value Orientation | .23** | .13* | | |
| Dispositional Envy Scale | .35*** | .25** | | |
| Material Values Scale | .55*** | .56*** | .69*** | .63*** |
| Tightwads-spendthrifts Scale | | | .36*** | |
| Self-Control Scale | -.31*** | -.20** | | |
| Impulsiveness[7] | .23** | | .33*** | |
| Buying Impulsiveness Scale | | | .45*** | |
| Temporal preferences | | -.07 | | |
| Risk aversion | | -.01 | | |
| Psychological Entitlement Scale | .29*** | | | |
| Self-Report Psychopathy Scale | .30*** | .21** | | |
| Perspective taking | -.30*** | | | |
| Emphatic Concern | -.21** | | | |
| Rosenberg Self-Esteem Scale | | -.13 | | -.20*** |
| Satisfaction With Life Scale | | -.07 | | -.07*** |
| Beck Depression Inventory | | .02 | | |
| Iowa-Netherlands Comparison Orientation Measure | .13 | | .39*** | |
| Social desirability | | | | -.26*** |
| Extraversion | -.03 | .08 | | -.02 |
| Agreeableness | -.09 | -.13* | | -.21*** |
| Conscientiousness | -.115 | -.04 | | -.21*** |
| Emotional Stability | -.19* | -.06 | | -.25*** |
| Openness | -.17* | .00 | | .03 |

*Note.* * $p$ <.05; ** $p$ <.01; ***$p$ <.001. Correlations are only reported if the measure was in the sample.

**Table A4.4.** *Re-analysis: Regression analyses of demographics on the 3-item Dispositional Greed Scale in Sample 3.1.4 of Study 3.1.*

| Variable | *b* | *s.e.* | β | *t* | *p* |
|---|---|---|---|---|---|
| *Step 1* | | | | | |
| Age | -0.02 | .00 | -.37 | -24.09 | < .001 |
| Gender (0 = female; 1 = male) | 0.18 | .02 | .13 | 8.33 | < .001 |
| *Step 2* | | | | | |
| Income (net income per month in €'s) | 0.00 | .00 | .10 | 0.65 | .516 |
| Education (ranging from 1 = elementary education; 6 = university) | 0.01 | .01 | .02 | 1.03 | .304 |
| Political orientation (0 = left; 10 = right) | 0.03 | .01 | .09 | 5.77 | < .001 |
| Religiosity (0 = not religious; 1 = religious) | -0.04 | .03 | -.02 | -1.41 | .159 |

**Table A4.5.** *Re-Analysis: (Partial) Correlations of the 3-item Dispositional Greed Scale and Materialistic Value Scale with non-materialistic and materialistic desires in Study 3.2.*

| | Descriptives | | Correlations | | Partial correlations | |
|---|---|---|---|---|---|---|
| | *M* | *SD* | Greed (DGS) | Materialism (MVS) | Greed (DGS) | Materialism (MVS) |
| When I am eating a bag of chips, I don't want to stop until the bag is finished. | 2.89 | 1.21 | .12*** | .06 | .24*** | -.11 |
| When I am single, I like to have casual sex with as many people as possible. | 2.21 | 1.26 | .24*** | .15* | .18** | -.00 |
| When I am using social networking sites (e.g., Facebook, LinkedIn), I want to have as many friends as possible. | 2.24 | 1.03 | .25*** | .25*** | .12* | .12* |
| When I see a newer model of my phone I immediately want to have it. | 2.49 | 1.21 | .36*** | .44*** | .11 | .30*** |

*Note.* * $p$ <.05; ** $p$ < .01 *** $p$ <.001. Dispositional greed was measured on a 5-items Likert-scales, ranging from 1 = *strongly disagree* to 5 = *strongly agree* ($M$ = 2.70, $SD$ = 0.96). Reliability of the scale was good ($\alpha$ = .80).

**Table A4.6.** *Re-analysis: The 3-item Dispositional Greed Scale as a predictor of behavior in a Dictator game, Ultimatum game, and Harvesting dilemma (Studies 3.3, 3.4, and 3.5).*

| | Greed | | | Relationship with DV | | |
|---|---|---|---|---|---|---|
| DV | *M* | *SD* | α | β | *t* | *p* |
| Study 3.3: Dictator Game: Keeping Money | 2.87 | 0.93 | .81 | .20 | 3.48 | .001 |
| Study 3.4: Ultimatum Game - Proposers: Keeping Money | 2.95 | 0.89 | .79 | .15 | 2.60 | .010 |
| Study 3.4: Ultimatum Game – Responders: Rejecting Offers | 2.99 | 0.89 | .75 | .12 | 1.85 | .066 |
| Study 3.5: Harvesting Game: Harvesting Trees | 2.84 | 0.99 | .83 | .20 | 3.47 | .001 |

*Note.* Responses were measured on a 5-items Likert-scales, ranging from 1 = *strongly disagree* to 5 = *strongly agree* (*M* = 2.70, *SD* = 0.96).

# CHAPTER 5
# Enough is Never Enough: Greed, Work, and Overearning

*Overearning is the tendency to forgo leisure and earn more than is needed and can be spent. Hsee, Zhang, Cai, and Zhang (2013) developed a paradigm to measure overearning; we build upon their findings by examining an explanation of overearning in terms of greed. Study 5.1 found that dispositional greedy individuals showed a higher level of overearning than less greedy individuals did. Greedy people worked harder and earned more chocolates than they consumed. Study 5.2 suggests that greedy people overearn more because they find the pursuit of wealth more important, not because they find labor less aversive. Finally, Study 5.3 replicated and extended the results of Study 5.1 and earlier findings by measuring overearning twice, with a four-week interval. We again found that dispositional greedy people overearn more. We also found that people who overearn are less satisfied with their outcomes and that they learn from overearning in the past (overearning is reduced at Time 2). However, even at Time 2 we found overearning, and greedy people still overearn more. In sum, people have a general tendency to overearn, but for greedy people this tendency is stronger. This signals that greed may be one of the causes of overearning.*

This chapter is based on Seuntjens, T. G., Zeelenberg, M., Van de Ven, N., & Breugelmans, S. M. (2016). Enough is never enough: Greed, work, and overearning. *Manuscript under review.*

Modern economics owes much to John Stuart Mill (1844), who was among the first to present a coherent view of economics as a science (Heukelom, 2014). Mill believed that, in order to understand economics, one needs to assume a few general principles of human behavior. The most important of these were the *pursuit of wealth* and the *aversion to labor*. Based on the assumed aversion to labor, John Maynard Keynes (1963) predicted that around 2030 people would enjoy "the good life". He expected people to work some fifteen hours a week, as the result of increasing technological developments and higher earning rates. This prediction will most likely not come true. Despite a major increase in economic growth and massive technological innovations, people are still working considerably more than fifteen hours a week, including a large share of people who earn substantially more than would strictly be needed for "the good life". There may be many explanations for this observation. One of these could be that the pursuit of wealth is apparently so strong that people overcome their aversion to labor and continue to work, even if they already have earned enough. Hsee, Zhang, Cai, and Zhang (2013, p. 852) labeled this "tendency to forgo leisure and earn beyond one's needs" *overearning*.

Of course there are good reasons for people to work hard and to earn more than they need. People might want to earn more so they have a buffer in case of an emergency, or because they want to bestow money on their children (Hsee et al., 2013). People can like their work and feel fulfilled by it, they can enjoy the contacts with others that work brings, and can feel like they help others and the world. In addition, work can make people feel autonomous and give them meaning (Schwartz, 2015). However, all these benefits of work can also be received when working a bit less: would you feel less fulfilled if you were to spend four hours a week less on work? Would you really feel less accomplished or autonomous?

Overearning, generating more income than strictly necessary, does bring various costs. Working too hard has been associated with poor health, poor social relationships, and burnout (e.g., Shaufeli, Taris, & Van Rhenen, 2008). Overearning also entails opportunity costs. People who work too much have less

time for hobbies, friends, and family, an observation that is prevalent in regret research (Zeelenberg & Pieters, 2007). Specifically, one of the top-five regrets reported on people's deathbed is having worked too hard, and as a result, not having spent enough time with loved ones (Ware, 2011). Cozzolino, Sheldon, Schachtman, and Meyers (2009) investigated the idea that "at the end of life, nobody wishes they had made more money" (p. 399). When people know they are running out of time, they shift their priorities from material motivations to more intrinsically meaningful motives, such as self-acceptance and affiliation. This was especially the case for people who are usually extrinsically motivated, and normally focus on things like money and beauty.

Besides regret over not spending enough time on loved ones there are also other opportunity costs of overearning. For example, overearning stands in the way of pursuing other activities that pay-off in the future, such as taking advanced education. In addition, overearning has costs at the societal level, because it is wasteful when resources that could be conserved or used by others are acquired but not used.

So why does overearning occur? Hsee et al. (2013) developed an elegant paradigm to study overearning in the laboratory, under controlled circumstances. This paradigm stays close to Mill's assumptions in the sense that labor is aversive and wealth cannot be stored or transferred. As such, it controls for normative reasons for overearning, such as job satisfaction, uncertainty about the future, and the desire to bequeath money to others. In the paradigm participants perform tedious tasks (work) with which they earn chocolates or jokes (rewards). Thereafter, they have a limited time to consume these rewards (consumption). Even in this minimalistic paradigm, Hsee et al. observed that many people work too much and earn more than they can consume. They argued that overearning occurs as a result of mindless accumulation: people tend to work until they are tired, instead of stopping when they have accumulated enough. We propose that motivational factors play a role too. Specifically, we examine whether greed is a potential cause of overearning.

## Greed as a cause of overearning

Greed is defined as "desiring to acquire more and the dissatisfaction of never having enough" (Seuntjens, Zeelenberg, Breugelmans, & Van de Ven, 2015a, p. 518; see also Wang & Murnighan, 2011). It is related to, but different from, materialism and feelings of envy. Greed may lead to self-interested behavior and tunnel vision in the pursuit of acquiring more. Economic theory assumes people to be greedy, as is expressed by the assumption of maximization (also called "the axiom of greed"; Lea, Tarpy, & Webley, 1987). People are assumed to always prefer more of a desirable good, as getting more of something positive improves their position. Striving for the maximization of one's outcomes is seen as a virtue that leads to economic development and prosperity (Smith, 1776/1994). Not surprisingly, greed is often argued to be a driving force behind economic growth and wealth (Melleuish, 2009). The motive of greed represents the pursuit of wealth as Mill described it, and as such we expect it to be an important factor in overearning.

Greed also manifests itself in other ways. Greed can be exploitative when it causes people to claim more than their fair share, such as in the Tragedy of the Commons (Hardin, 1968) and other resource management situations (Wilke, 1991; Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2015b). In addition, greed has been associated with financial scandals and the recent financial crisis (Wang & Murnighan, 2011), employee fraud (Wells, 2001), lower stockholder returns (Haynes, Campbell, & Hitt, 2014), consumer debts (Livingstone & Lunt, 1992), and immoral behavior (Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2016c). We expect overearning to be another consequence of greed.

The tendency of people to be greedy can be measured with the Dispositional Greed Scale (DGS), which reliably and validly assesses individual differences in the propensity to be greedy (Seuntjens et al., 2015b; see Krekels & Pandelaere, 2015, for a similar approach). Differences on the DGS predict behavioral decisions in resource dilemmas, dictator games, and ultimatum games. The DGS consists of seven items (e.g., "I always want more", and "Actually, I'm kind of

greedy") that are measured on 5-point Likert scales (1 = *strongly disagree,* 5 = *strongly agree*). In the present research, we expected that these individual differences in greed would be related to overearning.

## The present studies

To summarize our main idea, we expected that overearning exists because people value the pursuit of wealth more than they are aversive to labor. We expected greed to amplify the pursuit of wealth, but not necessarily to weaken the aversion to labor, and therefore predicted that greed would lead to more overearning. Study 5.1 tested this prediction by relating individual differences in greed (Seuntjens et al., 2015b) to people's behavior, using Hsee et al.'s (2013) overearning paradigm. Study 5.2 examined in more detail whether the relationship between greed and overearning can be explained because greed increases the desire to pursue wealth or whether greed might also be associated with a decreased aversion to labor.

Our final Study 5.3 further investigated the relationship between dispositional greed and overearning. One might argue that the overearning paradigm we used in Study 5.1 confronts participants with an unfamiliar and hence weak situation (Mischel, 1968). "It has been well known for some time that dispositional effects are likely to be strongest in relatively weak situations and weakest in relatively strong situations" (Davis-Blake & Pfeffer, 1989, p. 387). Put differently, greed may be more likely to manifest itself and result in overearning, when participants are not sure what to do, and thus did what they typically do. In order to eliminate this possibility, we used a design with repeated measures in Study 5.3. Offering participants the opportunity to engage in the work-task twice, makes it possible for them to learn more about the specifics of the task, to learn about their own behavior, and about how they evaluate the outcomes (Hertwig & Ortmann, 2001). If participants still overearn at Time 2, and this overearning is again predicted by dispositional greed, this gives even stronger support for our hypothesis that greed causes overearning. In addition, in Study 5.3, we explored the relationship between regret and (dis)satisfaction with overearning at Time 1 and Time 2.

# STUDY 5.1

## Method

A total of 156 Tilburg University students participated in this study. We ran this study for one week in the laboratory, which typically gives 140-180 participants.[26] Students received course credit or a €8.00 show up fee. For three participants we did not receive correct ID numbers, so we could not match the chocolates earned and consumed with their greed scores. Mean age of the remaining 153 participants was 20.33 (*SD* = 2.38), 69.3% of the participants was female.

Participants came into the lab and were seated in front of the computer with headphones on. They read the instruction and started with the study. We employed the overearning paradigm by Hsee et al. (2013). This consisted of two phases that each lasted five minutes. In the *Work Phase,* participants could relax and listen to classical piano music or they could "work" by pressing a key that interrupted the music with white noise for the duration of 0.2 seconds. A pretest (*N* = 49) showed that participants rated the music as being significantly more pleasant (*M* = 4.53, *SD* = 0.79) than the noise (*M* = 1.67, *SD* = 0.92), $t(48) = -16.80$, $p < .001$, $d = 3.34$ (1 = *very unpleasant,* 6 = *very pleasant*). For each 20 times the participant chose to interrupt the music and expose themselves to the white noise, they earned a chocolate (the number of chocolates earned is the measure of work). In the *Consumption Phase* participants had five minutes to eat the earned chocolates (the number of chocolates consumed is the measure of consumption). Participants knew beforehand that both phases lasted five minutes and that any remaining chocolates would be taken away by the experimenter. The amount of chocolates earned, but not consumed, is the measure of *overearning*. After participants completed the procedure, they were asked to fill out the DGS and rated how much they liked chocolate in general (1 = *not at all*, 7 = *a lot*).

[26] We report how we determined our sample size, all data exclusions, all manipulations, and all measures in all studies.

## Results and discussion

### Overearning

Because the number of chocolates earned and consumed was not normally distributed, we conducted a non-parametric paired samples sign test to see if participants overearned. On average, participants earned significantly more chocolates ($M$ = 5.29, $SD$ = 7.33, $Mdn$ = 3) than they consumed ($M$ = 2.47, $SD$ = 3.06, $Mdn$ = 2), $Z$ = -7.55, $p$ < .001.[27] This means they overearned on average 2.82 chocolates ($SD$ = 5.51, $Mdn$ = 0), replicating Hsee et al. (2013). To summarize; 38.6% of participants overearned and had chocolates left after the experiment, indicating they had worked more than needed.

### Greed and overearning

Because of the skewed distribution, we conducted over-dispersion corrected Poisson regression analyses in which we regressed dispositional greed on the amount of chocolates earned, consumed, and overearned, while controlling for liking chocolate.[28] As expected, greedy individuals *earned* more chocolates than less greedy individuals, $b$ = 0.37, $SE$ = 0.15, $t$(152) = 2.47, $p$ = .015. The effect of greed on the amount *consumed* was marginally significant, $b$ = 0.24, $SE$ = 0.13, $t$(152) = 1.87, $p$ = .06. Most importantly, *overearning* was also predicted by greed, $b$ = 0.49, $SE$ = 0.21, $t$(152) = 2.27, $p$ = .025.[29] Figure 5.1 plots the results of the Poisson regression analyses making the relation visible between greed and earning, consumption, and overearning.

## STUDY 5.2

Study 5.1 established the relationship between dispositional greed and overearning, showing that in Hsee et al.'s (2013) paradigm greedier people work more, but also overearn more. Study 5.2 adds to this the relationship between dispositional greed and Mill's (1844) two core principles of economic behavior, the pursuit of wealth and the aversion to labor, in order to investigate *how* greed

[27] A paired samples $t$-test yielded similar results, $t$(152) = 6.32, $p$ < .001, $d$ = 0.50.

[28] Not controlling for liking chocolate yielded similar results across the analyses.

[29] Linear regression analyses yielded similar results. Earning: β = .19, $t$(152) = 2.43, $p$ = .02; consumption: β = .14, $t$(152) = 1.79, $p$ = .08; overearning: β = .18, $t$(152) = 2.22, $p$ = .03.

relates to overearning. We expected that greed would be related to the pursuit of wealth, because greed is characterized by an insatiable desire for more. We did not expect a relation between greed and the aversion to labor. Greedy people are motivated to obtain more and are ambitious in doing so, but we see no reasons why greedy people would *like* working more.

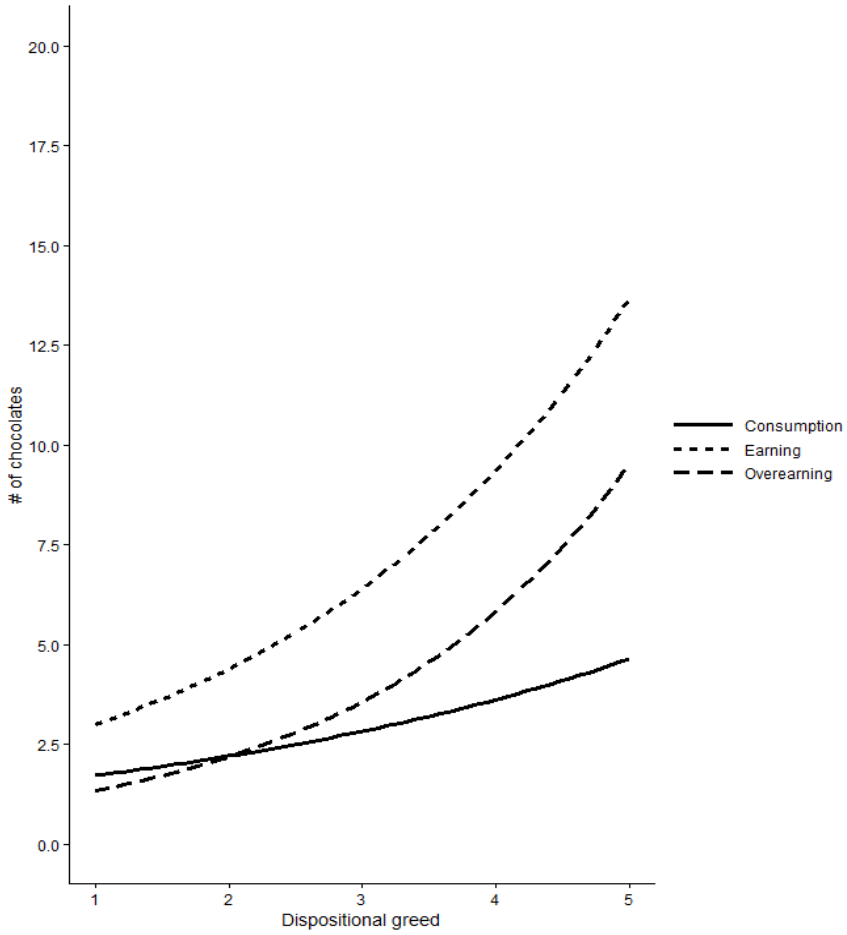



**Figure 5.1.** *The amount of chocolates earned, consumed, and overearned as a function of dispositional greed in Study 5.1 (N = 156).*

## Method

US-based MTurk workers ($N$ = 297, $M_{age}$ = 33.28, $SD$ = 10.93, 39.7% female) participated in return for $0.30. Beforehand, we aimed for 300 participants, which would imply a power of .94 based on the effect size found in Study 5.1. Participants read the overearning paradigm instructions, listened to the music and white noise and saw a picture of the chocolates used in Study 5.1. They then answered questions about how they would experience the task. *Aversion to labor* was measured with: "How attractive or unattractive would the white noise be?" We also included the question: "How attractive or unattractive would the music be?" *Pursuit of wealth* was measured with: "How attractive or unattractive would it be to earn chocolates?" All questions were answered on 7-point scales (-3 = *very unattractive*, 3 = *very attractive*). Participants completed the DGS either before or after answering the questions on how they would experience being part of the overearning study. At the end of the study participants rated how much they liked chocolate (1 = *not at all*, 7 = *a lot*).

## Results and discussion

The white noise was rated significantly lower than the scale midpoint of 0, $M$ = -1.99, $SD$ = 1.16, $t(296)$ = -29.53, $p < .001$, $d$ = 1.71, indicating that the labor was indeed experienced as aversive. Both the music, $M$ = 1.74, $SD$ = 1.28, $t(296)$ = 23.53, $p < .001$, $d$ = 1.37, and the option to earn chocolates, $M$ = 1.07, $SD$ = 1.63, $t(296)$ = 11.37, $p < .001$, $d$ = 0.66, were rated to be attractive (i.e., significantly higher than 0). Thus participants indicated to appreciate leisure (listening to the music), and the opportunity to pursue wealth (earn the chocolates).

To test how greed relates to aspects of overearning. We regressed dispositional greed on the aversion to labor and the pursuit of wealth, while controlling for the general tendency to like chocolates.[30] There was no relationship between dispositional greed and the aversion to labor (the [un]attractiveness of the white noise), β = .07, $t(296)$ = 1.22, $p$ = .22. Greedier people seemed to find the noise

[30] Not controlling for liking chocolate yielded similar results across all analyses.

(the work) equally unpleasant as less greedy people did. There was also no relationship between dispositional greed and the [un]attractiveness of the music, β =.04, $t(296) = 0.721$, $p = .47$. There was, however, the expected relationship between dispositional greed and the pursuit of wealth (the [un]attractiveness of the of earning chocolates), β = .14, $t(296) = 2.18$, $p = .02$. In addition, the relationship between dispositional greed and liking chocolates was not significant, $r(295) = .06$, $p = .332$. To summarize, greedier people found it more attractive to pursue rewards. They did not find work to be less aversive. Furthermore, greedier individuals did not necessarily find the specific reward that was used in our studies (chocolate) to be more interesting. These findings suggest that greed leads to more overearning because greedy people value the pursuit of wealth more.

## STUDY 5.3

Our final study addresses the relationship between dispositional greed and overearning using a repeated measures design. This allows participants to familiarize themselves with the procedure and to learn about how their actions influence their outcomes (Hertwig & Ortmann, 2001). In Study 5.1, it might be argued that overearning was the result of participants not fully understanding the paradigm, and that the relationship with greed could be explained by the uncertainty of the situation making people rely more on their greedy inclinations (Davis-Blake & Pfeffer, 1989; Mischel, 1968). Using repeated measures in Study 5.3, we can address this possibility. Hence, if we still find overearning at Time 2, this is not likely to be the result of uncertainty. Study 5.3 thus provides a stronger test of our hypothesis that greed causes overearning. In addition, Study 5.3 offers the opportunity to investigate the role of regret and (dis)satisfaction. It is well-known that regret can lead to learning (Zeelenberg & Pieters, 2007); people who overearn more, probably regret more, and should thus learn more.

### Method

In order to test our hypotheses, we measured overearning and greed at two moments in time, four weeks apart. We ran this study for one week in the laboratory, which resulted in 185 participants completing the study at Time 1.

The mean age of the participants was 19.74 (*SD* = 2.14) and 81.6% of the participants was female. At Time 2, 239 Tilburg University students ($M_{age}$ = 19.96, *SD* = 2.52, 79.7% female) completed the study, of whom 133 participants ($M_{age}$ = 19.63, *SD* = 2.12, 86.5% female) also participated at Time 1. Participants received course credit or a €5.00 show up fee per session.

Our method was similar to that of Study 5.1. At Time 1, participants completed the overearning paradigm (Hsee et al., 2013) and the DGS (Seuntjens et al., 2015b), the order of these two measures was counterbalanced. We now also included questions about regret and satisfaction with the outcome. After participants had earned chocolates we asked them "How satisfied are you with the number of chocolates that you have earned in comparison to how hard you had to work?". After the experimenter had taken away the left over chocolates we asked them "How satisfied are you with the number of chocolates that were left over in comparison to how hard you had to work?" (both -3 = *very dissatisfied*, 3 = *very satisfied*). In addition, we asked them about how much they regretted the amount of work they did "If you look at the number of chocolates that you have left, how much do you regret all the work you did?" (1 = *no regret at all*, 7 = *a lot of regret*) and whether they would have liked to have done it differently "In hindsight, would you want to work less, equal, or more?" (-3 = *much less*, 3 = *much more*). In addition, participants rated how much they liked chocolates (1 = *not at all,* 7 = *a lot*). At Time 2, the procedure was identical to the procedure at Time 1.

## Results and discussion

### Time 1

*Overearning.* Replicating the results from Hsee et al. (2013) and Study 5.1, participants earned significantly more chocolates (*M* = 7.72, *SD* = 10.75, *Mdn* = 4) than they consumed (*M* = 2.52, *SD* = 2.64, *Mdn* = 1), $Z$ = -7.55, $p < .001$.[31] This means they overearned on average 5.20 (*SD* = 9.71, *Mdn* = 2) chocolates.

[31] A paired samples *t*-test yielded similar results, $t(184) = 7.29$, $p < .001$, $d = 0.66$.

In total 54.1% of participants overearned and had chocolates left at the end of the experiment.

*Greed and overearning.* Three over-dispersion corrected Poisson regression analyses were conducted with dispositional greed as predictor and amount of chocolates earned, consumed, and overearned as dependent variables.[32] Greedy individuals *earned* more chocolates than less greedy individuals, $b = 0.36$, $SE = 0.13$, $t(184) = 2.67$, $p = .008$ . We did not find an effect of greed on the amount of chocolates *consumed*, $b = 0.03$, $SE = 0.10$, $t(184) = 0.27$, $p = .79$ (we had found a marginally significant effect here in Study 5.1). Most importantly, we replicated that *overearning* was predicted by greed, $b = 0.50$, $SE = 0.17$, $t(184) = 2.96$, $p = .003$.[33] See Figure 5.2 for a graphical representation of the analyses.

*(Dis)Satisfaction and regret.* We were also interested in people's emotional reactions to overearning. We asked how (dis)satisfied participants were after they earned and overearned (-3 = *very dissatisfied*, 3 = *very satisfied*). Participants were satisfied after they earned chocolates ($M = 2.23$, $SD = 1.12$), but satisfaction dropped after the consumption phase ($M = 1.83$, $SD = 1.41$), paired-$t(183) = 4.38$, $p < .001$, $d = 0.31$. Participants who had earned more, were more satisfied with their chocolates than participants who had earned less, $\beta = .15$, $t(183) = 2.08$, $p = .039$. However, as soon as left-over chocolates were taken away at the end of the consumption phase, and earning became overearning, participants who had overearned more, were less satisfied than participants who had not overearned as much, $\beta = -.18$, $t(184) = 2.41$, $p = .017$.

[32] We controlled for liking chocolate. Not controlling for liking chocolate yielded similar results.
[33] Linear regression analyses yielded similar results. Earning: $\beta = .20$, $t(184) = 2.72$, $p = .007$, $p = .02$; consumption: $\beta = .02$, $t(184) = 0.28$, $p = .78$; overearning: $\beta = .21$, $t(184) = 2.93$, $p = .004$.

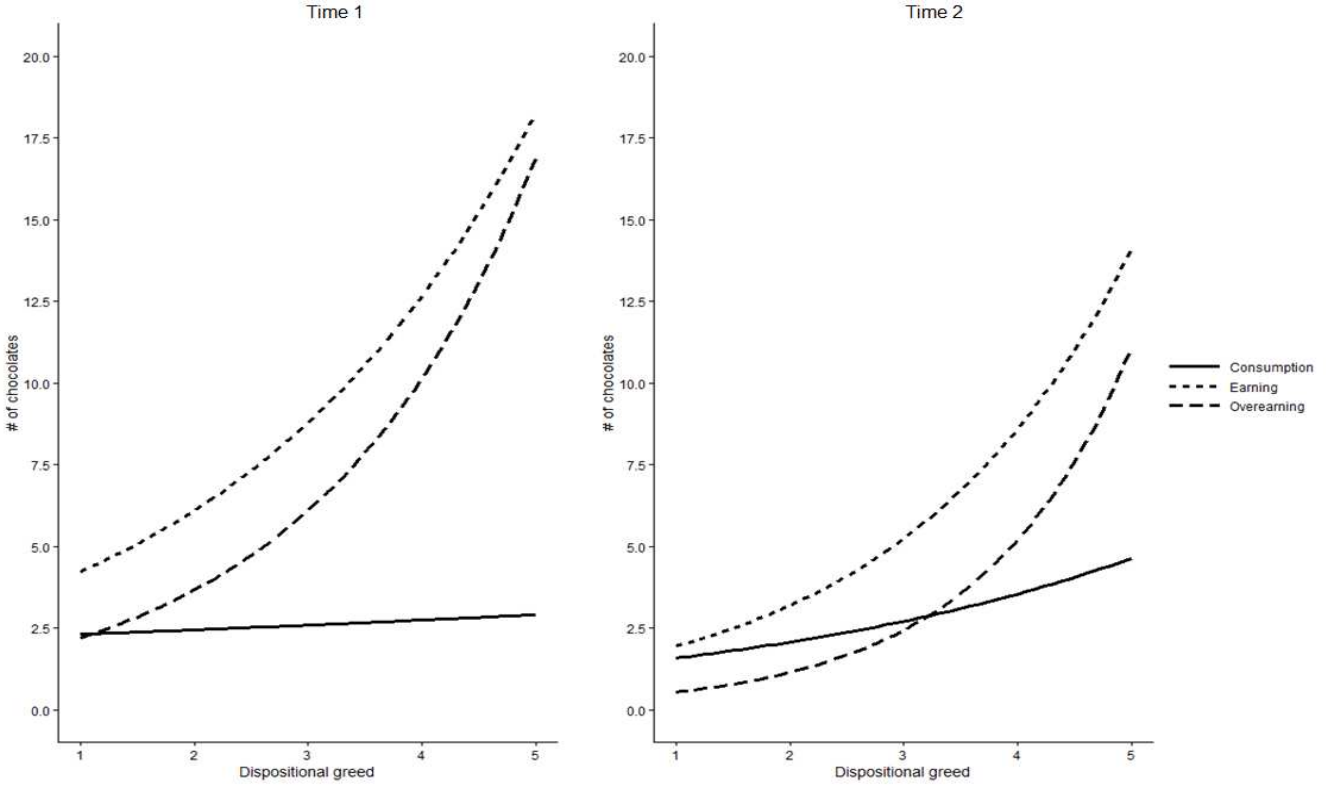



**Figure 5.2.** *The amount of chocolates earned, consumed, and overearned as a function of Dispositional Greed in Study 5.3 at Time 1 (N =185) and Time 2 (N = 133).*

There was no direct effect of greed on (dis)satisfaction after overearning, β = .01, $t(184) = 0.06$, $p = .95$. Interestingly, conducting a mediation analysis (with bias corrected intervals and 10,000 iterations; see Preacher & Hayes, 2008), we found that the relationship between greed and satisfaction is mediated by overearning (95% CI: lower = -.19; upper = -.01). Thus, although greed did not directly lead to less satisfaction, it did lead to more overearning, which led to reduced satisfaction.

For regret, we found a similar pattern. Participants who had overearned more, regretted the amount of work more than participants who had not overearned as much, β = .32, $t(184) = 4.64$, $p < .001$. We did not find a direct effect of greed on regret, β = .09, $t(184) = 1.26$, $p = .21$. Mediation analysis revealed that the relationship between greed and regret was mediated by overearning (95% CI: lower = .04; upper = .21). In addition, participants who indicated that they regretted the amount of work they did indicated that, in hindsight, they should have worked less, β = -.45, $t(184) = 6.72$, $p < .001$.

### Time 2

*Overearning.* At Time 1 we found that greedy people overearned more than less greedy people, and that people who overearned were less satisfied with their outcomes. We tested whether people's behavior changed at Time 2 when put in the same situation again. We found that participants who had participated at Time 1 still overearned at Time 2 ($M_{earning} = 4.35$, $SD = 6.58$, $Mdn = 3$; $M_{consumption} = 2.41$, $SD = 2.19$, $Mdn = 2$; $M_{overearning} = 1.95$, $SD = 5.66$, $Mdn = 0$), $Z = -6.93$, $p < .001$,[34] but overearning was significantly lower at Time 2 ($M = 1.95$, $SD = 5.66$, $Mdn = 0$) compared to Time 1 ($M = 4.65$, $SD = 8.92$, $Mdn = 2$), $Z = -4.05$, $p < .001$.[35] At Time 2, 37.6% of the participants still overearned. Table 5.1 shows all the difference scores between Time 1 and Time 2 for participants that participated at both times.

[34] A paired samples *t*-test yielded similar results, $t(132) = 3.97$, $p < .001$, $d = 0.40$.
[35] A paired samples *t*-test yielded similar results, $t(132) = 3.71$, $p < .001$, $d = 0.41$.

We also compared participants ($N$ = 99) who participated for the first time at Time 2 with those who participated for the second time ($N$ = 136[36]) using a Mann-Whitney U test. Participants who participated for the first time ($M$ = 3.27, $SD$ = 7.26, $Mdn$ = 0) overearned significantly more than participants that did the study for the second time ($M$ = 1.91, $SD$ = 5.60, $Mdn$ = 0), $U$ = 5555.00, $p$ = .011.[37] Of the participants who participated for the first time, 49.5% overearned, whereas of the participants that did the study for the second time only 36.8% overearned. It is thus clear that participants learn from prior overearning, and overearn less a second time, though overearning still exists.

*Greed and overearning.* We conducted over-dispersion corrected Poisson regression analyses with dispositional greed as predictor and amount of chocolates earned, consumed, and overearned as dependent variables, while controlling for liking chocolate.[38] Similar to Study 5.1 and Time 1 in Study 5.3, we found that greedy individuals *earned*, $b$ = 0.48, $SE$ = 0.15, $t(132)$ = 3.30, $p$ = .001, and *consumed*, $b$ = 0.26, $SE$ = 0.09, $t(132)$ = 2.91, $p$ = .004 more chocolates than less greedy individuals did. Most importantly, we replicated that also at Time 2 *overearning* was predicted by greed, b = 0.74, $t(132)$ = 2.68, $SE$ = 0.28, $p$ = .008 (see Figure 5.2 for a graphical representation).[39]

[36] Note that the number of participants who indicated that they participated for the second time is one person higher than the number of participants that we actually have data of at two times. It is possible that we could not link the data of one participants because he/she made a typo when we asked for the identification number.

[37] An independent samples $t$-test found a trend in the same direction, albeit not significant, $t(233)$ = 1.62, $p$ = .11.

[38] We used greed at Time 1 as a predictor. There was no difference between greed at Time 1 and Time 2, $t(132)$ = *1.39,* $p$ = .166, $r(132)$ = .83. Using greed at Time 2 yielded similar results. If we do not control for liking chocolate, we find similar results.

[39] Linear regression analyses yielded similar results. Earning: $\beta$ = .26, $t(132)$ = 3.07, $p$ = .003; consumption: $\beta$ = .22, $t(132)$ = 2.74, $p$ = .007; overearning: $\beta$ = .21, $t(132)$ = 2.48, $p$ = .014.

**Table 5.1.** Comparison of dependent variables at Time 1 and Time 2 in Study 5.3.

| | Time 1 $N = 185$ | | | | Time 2 $N = 133$ | | | | Time 1 – Time 2 $N = 133$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | *M* | *SD* | *Mdn* | *% > 0* | *M* | *SD* | *Mdn* | *% > 0* | *Z / t* | *p* | *d* |
| *Number of chocolates* | | | | | | | | | | | |
| Earned | 7.72 | 10.75 | 4 | 82.2 | 4.35 | 6.58 | 3 | 87.2 | -3.18 | .001 | |
| Consumed | 2.52 | 2.64 | 1 | 77.8 | 2.41 | 2.19 | 2 | 83.5 | -0.42 | .675 | |
| Overearned | 5.20 | 9.71 | 2 | 54.1 | 1.95 | 5.66 | 0 | 37.6 | -4.05 | .001 | |
| *Ratings* | | | | | | | | | | | |
| Satisfaction with earned chocolates | 2.22 | 1.12 | | | 2.35 | 0.81 | | | -.0.94 | .348 | 0.13 |
| Satisfaction with left over chocolates | 1.82 | 1.41 | | | 2.20 | 0.98 | | | -2.78 | .006 | 0.31 |
| Regret about work | 1.72 | 1.19 | | | 1.38 | 0.85 | | | 3.29 | .001 | 0.33 |
| Amount of work in hindsight | -0.37 | 1.16 | | | -0.16 | 0.91 | | | -1.67 | .097 | 0.20 |

*Note.* We counted the number of chocolates earned, consumed and overearned. Satisfaction with earned and left over chocolates was measured on a 7-point scale ranging from -3 = *very dissatisfied* to 3 = *very satisfied*. Regret was measured on a 7-point scale ranging from 1 = *no regret at all* to 7 = *a lot of regret*. Work in hindsight was measured on a 7-point scale ranging from -3 = *much less* to 3 = *much more*.

*(Dis)Satisfaction and regret.* Just as at Time 1, at Time 2 participants were more satisfied after they had earned the chocolates, but before they consumed them ($M$ = 2.34, $SD$ = 0.81), than after they consumed them and returned the left over ones ($M$ = 2.20, $SD$ = 0.98), $t(132) = 2.14$, $p = .035$. However, there was no effect of overearning on satisfaction, $\beta = -.06$, $t(132) = 0.64$, $p = .53$, nor of greed on satisfaction after overearning, $\beta = .04$, $t(132) = 0.06$, $p = .70$. In other words, the number of chocolates participants had to return and their greediness did not influence satisfaction after they had to return the chocolates. There was no effect of overearning on regret, $\beta = .05$, $t(132) = 0.57$, $p = .57$, but, there was an effect of greed on regret, $\beta = .19$, $t(132) = 2.22$, $p = .028$. Greedy individuals regretted their behavior more than less greedy individuals.

Participants overearned less at Time 2 than they had done at Time 1. If we look at possible reasons for this, we find that the more participants indicated at Time 1 that, in hindsight, they had wanted to work less, the less hard they worked at Time 2, b = -.43, $SE$ = 0.20, $t(132) = -2.18$, $p = .031$.[40] However, satisfaction after overearning at Time 1 did not predict overearning at Time 2, $b = -.06$, $SE$ = 0.17, $t(132) = -0.33$, $p = .740$.[41] Nor did regret after overearning at Time 1 predict overearning at Time 2, $b = 0.17$, $SE = 0.19$, $t(132) = 0.90$, $p = .373$.[42]

To conclude, in Study 5.3 we replicated that greedier people overearn more. We also found that people learn from prior overearning; when they have overearned in the past they tend to overearn less a second time. Above all, we find that also when doing the overearning paradigm twice, greedy people still overearn more.

## GENERAL DISCUSSION

This research replicates and extends the pioneering work of Hsee et al. (2013) on overearning, by examining the role of individual differences in greed and the role of regret and satisfaction in understanding overearning. Study 5.1 found that

[40] A linear regression analysis yielded similar results, $\beta = -.18$, $t(132) = -2.07$, $p = .040$.
[41] A linear regression analysis yielded similar results, $\beta = -.03$, $t(132) = -0.34$, $p = .736$.
[42] A linear regression analysis yielded similar results, $\beta = .08$, $t(132) = 0.90$, $p = .372$.

greedy people are more susceptible to overearning. Study 5.2 suggests that this effect is driven by greedy people having a stronger desire to pursue wealth, not because they have less aversion to labor (Mill, 1844). Study 5.3 replicates Study 5.1, finding that greedy individuals overearned more than less greedy individuals. Study 5.3 reveals a number of additional findings. First, the relationship between greed and overearning remains after participants have had the opportunity to learn, giving stronger support for the relationship between greed and overearning. Second, overearning was associated with more regret and (dis)satisfaction, and people who said that they would work in hindsight less at Time 1, actually did so at Time 2. In general, we found that people learn from prior overearning and do so less a second time.

## Contributions and implications

Hsee et al. (2013) argued for mindless accumulation of goods (working until one is tired, instead of until one has enough) as a possible explanation of overearning. Accordingly, overearning might be the result of some sort of functional heuristic. Historically earning rates have been low, meaning that overearning was not a frequently occurring problem, as people often could not earn too much. In addition to the mindless accumulation explanation, our point, that greed is associated with overearning, proposes that more motivational processes play a role in overearning as well. Greedy people overearn more than less greedy people, and they do so because they like earning more, not because they like working more than others do. Greed is often seen as a survival mechanism in situations of scarcity (Robertson, 2001), and, indeed, previous research has found that people who grew up in situations with scarcity are greedier than people who grew up in situations with abundance (Krekels, 2015). It might be that, especially for people who are used to having little, greed is a strategy to make sure that they have enough in the future, even if they have no immediate use for this surplus.

In Study 5.3 we wanted to see if the effect of dispositional greed on overearning would remain after people had the opportunity to learn from their previous behavior. Although we did indeed find that dispositional greedy people

still overearned more the second time, the overall overearning effect decreased. We found that this was especially the case for participants who indicated at Time 1 that they would want to work less a second time. It thus seems that participants do not accurately predict how much they want to earn, and learn from that mistake when confronted with a possible overearning situation a second time. A possible explanation for this is that people make incorrect predictions, which is in line with a vast body of research that has found that people are not good at predicting their future feelings and often make incorrect affective forecasts (Wilson & Gilbert, 2005). Another possibility is that people do not make erroneous predictions, but do not make predictions at all. Hsee et al. (2013) found that participants were pretty accurate at making predictions about how much they would consume when asked to make such a prediction, but normally did not make any predictions. Either way, this research suggests that people do not make accurate predictions at first, but learn to do so, after they have received feedback on their prior behavior.

Our research could have various practical implications. From an organizational perspective, it is interesting that dispositional greed is associated with more work and overearning. Greedy employees might be more productive, because they want to pursue positive outcomes more. However, there is also the risk of these employees investing effort in tasks that will ultimately lead to waste. More broadly speaking, our research could have implications for people's general well-being. When greedy people spend too much time working, this will result in having little time for other social interactions and enjoying the good things in life. At the end of life, people often regret the time they have invested in their work, instead of family, friends, and free time (Ware, 2011). Greedy people often have a lower satisfaction with life (Krekels & Pandelaere, 2015; Seuntjens et al., 2015b). They may maximize wealth, but do not appear to maximize well-being.

Lastly, our findings speak to more general ideas about the productive nature of greed in economics. We found that greedy people worked harder, earning more rewards. This finding corroborates ideas in economics about greed being the motor of economy, promoting hard work, and creating more income. To the

best of our knowledge, our findings in Studies 5.1 and 5.3 constitute the first empirical demonstration of this productive power of greed. At the same time, however, the finding that greed can result in working more than needed (even when the work is unattractive) clearly demonstrates the potential inefficiency of greed and indicates a limit to its productivity. The positive and negative effects of greed are two sides of the same coin. In many cases in life, earning a surplus actually yields economic benefits for others, for example when the surplus can be used by others. As such, greed can lead to both wasteful and productive overearning, depending on what can be done with the surplus that is generated. We believe that greed may be an important explanation for overearning.

Finally, we think it is important that our research also shows that overearning may be reduced. Often, people only find out that they worked too much when it is too late. If people would get feedback earlier about their work and earning patterns and realize that they are overearning, they could still change their behavior.

## Limitations and directions for further research

The reader may have noticed that we found an unexpected difference in the amount of chocolates overearned in Studies 5.1 and 5.3. This effect was not caused by the number of chocolates consumed by participants, but rather by the number of chocolates earned. We believe there are different possible explanations for this finding. One explanation might be that the Study 5.1 was conducted in spring, whereas Study 5.2 was conducted in the fall. Maybe people were more concerned with their diet in the spring (Study 5.1) as a preparation for the summer and as a result earned less. A second explanation is that we used different chocolates in Study 5.1 and 5.3, and that the ones in Study 5.3 looked more attractive.[43] However, both explanations do not inform us why consumption was the same in both studies. Fortunately, since both studies found the same pattern of behavior and a link between dispositional greed and overearning, we believe

[43] The chocolates in Study 5.3 were slightly more expensive, but also slightly larger.

that these across study differences do not influence the validity of our conclusions.

We used the overearning paradigm developed by Hsee et al. (2013). Although this is a good paradigm, controlling for normative reasons for overearning, it is very different from overearning in real life, which limits the external validity of our findings. According to Cialdini (1980) scholars should test natural observations first in a laboratory setting and then further test these hypotheses in the field (the so called full-cycle approach). A logical next step would thus be to investigate the relationship between greed, learning, and overearning in real life. For example, it would be interesting to look at elderly people and ask them how much time they have spent on work, and if this is predicted by individual differences in greed. If we indeed find this relationship, it would be interesting to see if we could change overearning in the working population, by giving feedback about earning patterns, so people can learn from their actions.

Another interesting question for follow-up research would be to look at overearning in a more competitive situation. Greedy individuals are more competitive than less greedy individuals and competition might exacerbate greed (Krekels, 2015). In situations of competition greed might thus be more likely, and overearning might also become more likely. An interesting prediction is thus whether competitive settings (e.g., the financial services industry) increase the likelihood of overearning.

## Concluding remarks

In three studies we investigated the relationship between overearning and greed. We found consistent support for a general tendency to overearn, which is amplified for individuals high in greed. Greedy people overearn not because they like working more, but because they find acquiring goods more desirable. However, people who overearn are less satisfied with their outcomes than people that do not overearn. Finally we find that people learn from prior overearning and overearn less a second time.

# CHAPTER 6
## Greedy Bastards: Greed and Unethical Behavior

*Greed is often seen as immoral, and although the assumption that greed elicits unethical behavior is widespread, there is surprisingly little empirical research that has tested this relationship. We present a series of three studies investigating the association between greed and unethical behavior, using different methodologies and samples from the USA, The Netherlands, and Belgium. Study 6.1 (3 samples, with total N = 3413) reveals that more greedy individuals find a variety of transgressions more acceptable and justifiable than less greedy individuals do, and indicate that they have more often engaged in a variety of transgressions. Study 6.2 (N = 172) replicated these findings in an incentivized behavioral laboratory study in which participants made a decision to accept a bribe or not. Greedy people were more likely to take a bribe and preferred higher ones. Study 6.3 (N = 302) examined the potential underlying process by which greed may lead to unethical behavior. Greedy people were found to be more likely to transgress because they find the positive outcomes associated with the transgression more desirable, and therefore have lower self-control. Implications for more general theories of greed and morality are discussed.*

This chapter is based on Seuntjens, T. G., Zeelenberg, M., Van de Ven, N., & Breugelmans, S. M. (2016). Greedy bastards: Greed and unethical behavior. *Manuscript under review.*

*"For the love of money is the root of all evil."*

– Timothy 6:10

*"Fraud is the daughter of greed."*

– Jonathan Gash

As the quotes above illustrate, greed is often seen as something bad and unethical. Being greedy is taking more than needed, and may hurt others especially in situations of scarcity. That may be the reason why classic philosophers like David Hume and Immanuel Kant considered greed as immoral and inappropriate (Wang & Murnighan, 2011). All major religious traditions approach greed as something evil. In Christianity greed is one of the seven deadly sins (Tickle, 2004), in Buddhism it is one of the three poisons that create bad karma (Nath, 1998), and in Hinduism it stands in the way of spiritual development (Sundararajan, 1989). Judaism condemns greed because it stands in the way of other people's opportunity to get what they deserve (Bloch, 1984). In Islam precautions against greed are taken in the form of mandatory generosity and charity for Muslims (Oka & Kuijt, 2014). Greed is thus often seen as something negative.

Not only philosophers and religions relate greed to immorality and unethical behavior. Greed is widely discussed as one of the causes of financial scandals and the late 2000s financial crisis. As Gilliland and Anderson (2014, p.99) put it: "greed has become synonymous with Wall Street, big banks, and indeed much of what is wrong with corporate America." For example, Jordan Belfort, whose actions inspired the movie 'The Wolf of Wall Street', later said that it was greed that drove him to commit fraud and swindle millions of dollars through his firm Stratton Oakmont (Belfort, 2014). Likewise, in other scandals, such as the Enron Scandal and the Bernie Madoff Investment Scandal, greed has been argued to be one of the causes (Sarna, 2010).

Furthermore, greed has been argued to be a factor related to corrupt mortgage lending (Morgenson & Rosner, 2011) and employee theft (Caudil, 1988). Haynes, Campbell, and Hitt (2014) report data that show that CEO greed has a

negative relationship with shareholder return. All-in all, greed has had a bad press when it comes to the financial world.

In spite of arguments in favor of a relationship between greed and unethical behavior, there are reasons to doubt whether greed in itself is inherently unethical. In economics people are assumed to be rational, self-interested, utility maximizers. The idea that it is rational to strive for an optimal outcome for oneself is sometimes referred to as the axiom of greed (Lea, Tarpy, & Webley, 1987). Greed could be seen as a form of ambition that makes people strive for better outcomes for themselves. Krekels and Pandelaere (2015) found that greed is related to productivity orientation (Keinan & Kivetz, 2011), which is the continuous striving to use time productively, to make progress, and to reach accomplishments. This corresponds with greed being seen as a central motive spurring economic growth and development (Greenfeld, 2001).

There are also instances of greed where notions of ethics do not apply, for instance when others are not negatively affected by greedy behavior. When someone is greedy for new clothes or shoes this is not necessarily unethical and is arguably good for the economy. There may be instances in which greed can be good for others, for example when greedy behavior is associated with generating surpluses (Oka & Kuijt, 2014) which can be used by other people in society. As a case in point, a greedy person who keeps striving to make more money also pays more taxes, which can be allocated to create or maintain public services.

A recent prototype analysis of the concept of greed and its usage in colloquial language confirmed the idea that greed is not necessarily immoral (Seuntjens, Zeelenberg, Breugelmans, & Van de Ven, 2015a). On the basis of this analysis greed was best defined as an insatiable desire to have more of something. Greedy people are seen as continuously striving for more and never being satisfied with their current state of affairs. Greed was found to be broader than material goods, and can also be felt for non-material desires such as power, status, or sex. Although the Dutch and U.S. participants in this prototype analysis did not necessarily see greed as bad, immoral behavior and behavior at the expense of

others often came to mind when they were asked to write down characteristics of greed.

Taken together, the association between greed and unethical behavior seems to be widely shared, but becomes more blurry at closer scrutiny. Furthermore, situations can be envisaged in which there is no relationship between greed and unethical behavior, or even the opposite relationship as greed can lead to behavior that is beneficial for society (as for example argued by economists who see greed as a positive motivator that causes economic growth). One way to solve this confusion is to empirically study the relationship between greed and unethical behavior. This is what we do in the present research. More specifically, we investigate if individual differences in greed predict immorality and unethical behavior and why this is the case.

Not all people are equally greedy, there are clear and stable individual differences in people's tendency to be greedy. Recently, a reliable and valid instrument has developed to assess an individual's dispositional greed (Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2015b). This Dispositional Greed Scale (DGS) consists of seven items that are measured on 5-point Likert scales (1= *strongly disagree,* 5 = *strongly agree*). Extensive testing with over 6000 participants revealed that dispositional greed correlated positively with maximization tendencies, envy, materialism, and having a proself orientation. It correlated negatively with self-control, perspective taking, and empathic concern (for similar findings see Krekels & Pandelaere, 2015). These patterns of correlations provide face validity for the DGS. Seuntjens et al. (2015b) further tested DGS's predictive validity in a series of economic dilemmas. They found that greedy individuals were more likely to propose unfair offers in both dictator games and ultimatum games. In a forest management-game (Sheldon & McGregor, 2000) greedy individuals were more likely to overharvest; giving evidence for the idea that greed plays a role in the Tragedy of the Commons (Hardin, 1968). Note that the behavior in these economic dilemmas, at least from a rational, economic perspective, is not necessarily unethical, as every individual is assumed to strive for optimal individual outcomes in these

dilemmas. In the current research we use the DGS and relate these individual differences in greediness to a variety of unethical behaviors.

## Greed and unethical behavior

The relative paucity in empirical research on greed in general, as noted by Wang and Murnighan (2011), also applies to the specific relation of greed and unethicality. We found only a small number of articles that address the effects of greed. Unfortunately, because of measurement problems and definitional issues these studies could not appropriately examine the relation between greed and unethical behavior. Let us explain below why we think this is the case.

Several studies on social decision making argue that greedy people display more unethical behavior. For example, Steinel and de Dreu (2004) argued that greedy people were more likely to withhold information from others in a negotiation setting. Cohen, Gunia, Kim-Jun, and Murnighan (2009) argued that groups were greedier than individuals and as a result were more likely to lie. Studies in these papers were typically set up to test multiple motivations such as fear and greed. Greed is then typically assessed with a single item asking participants if they were motivated by "enhancing one's outcomes". Of course, this item may pick up an element of greed but it is also likely to also pick up or other motives such as need or self-interest. Such statements do not pick up the excessive and insatiable elements in greed and therefore they cannot be taken as valid operationalizations of the unique motive of greed.

In other studies greed was not measured but rather inferred from people's behavioral decisions (Poppe & Utens, 1986; Rapoport & Eshed-Levy, 1989). For example, Gneezy, Saccardo, and Van Veldhuizen (2015) argued that greed is a reason for people to accept bribes. Because greed was not measured in their study this claim cannot be verified. By defining the accepting of bribes as the motive of greed, we cannot test if greed actually leads to unethical behavior. Put differently, motives and behaviors need to be independently assessed if any statement about their relationships (be it causal or correlational) can be tested. We provide such a test of whether greed influences the acceptance of bribes in Study 6.2.

In addition, a few other research projects have found that inducing people with a calculative mindset leads to greed and unethical behavior. Wang, Malhotra, and Murnighan (2011) found that enhancing economic principles such as maximizing utility induces greed. In other work Wang, Zhong, and Murnighan (2014) investigated how a calculating mindset influences ethical decisions. Participants were repeatedly exposed to calculations, and as a result were more likely to adopt a mathematical approach to solve problems. Participants also displayed more selfish and dishonest behavior to gain higher payoffs. Related to this are findings by Kouchaki, Smith-Crowe, Brief, and Sousa (2013), who found that the mere exposure to money resulted in adopting a business decision frame and more unethical behavior. These studies point in the direction of greed being associated with unethical behavior, however, this relationship was not tested directly. Perhaps manipulations of a mathematical mindset of money primes also have other effects that could have led to unethical behavior.

Lastly, the research that is most widely cited as showing that greed leads to unethical behavior is work by Piff, Stancato, Côté, Mendoza-Denton, and Keltner (2012). They found that those in higher social classes acted more unethically, and found that this relationship was mediated by "attitudes towards greed". People from a higher social class had more favorable attitudes towards greed and were more likely to engage in unethical behavior. Note that replications of this work failed to find the effect of social class on unethical behavior so more research is needed to see whether this effect is robust (Trautmann, Van de Kuilen, & Zeckhauser, 2013). More importantly for our argument, is that *attitudes* towards greed (whether it is good or bad) are different from the *experience* of greed (being greedy) itself. To illustrate this point by means of an analogy: seeing love as good or bad is clearly different from being in love.

Taken together, these earlier findings are important as they hint at a possible relationship between greed and unethical behavior (see also Seuntjens et al., 2015a) but they cannot provide clear evidence that this is indeed the case. None of the aforementioned studies actually measured greed as the tendency of people

to never be satisfied and to always desire more. Rather, greed was inferred from behavior or measured as the extent to which people had favorable attitudes towards greed. In the current research, we investigate if individual differences in greed can predict unethical behavior. We do this in survey studies with multiple samples (Study 6.1) and in laboratory studies with incentivized behavior (Study 6.2). In addition, Study 6.3 investigates *why* greedy people may be more likely to transgress. More specifically, we explore the role of self-control, a psychological factor often associated with unethical behavior. Let us explain below how we conceptualize this relation between greed, self-control, and unethicality.

## Greed, self-control, and unethical behavior

There is a vast body of research on the relationship between unethical behavior and self-control (Baumeister & Alghamdi, 2015). Self-control (also known as self-regulation) is often seen as a battle between willpower and desire (Hoch & Loewenstein, 1991), with willpower being used to restrain acting upon desire. If self-control is indeed the battle between will-power and desire, then both these processes are likely to affect unethical behavior. Greedy people have stronger desires, which creates a tougher battle for will-power to win and therefore giving in to temptation becomes more likely. For example, Seuntjens et al. (2015b) found that dispositional greed is negatively related to self-control and positively to impulsivity. Krekels and Pandelaere (2015) found that greed is positively related to egoism and defined as "the excessive concern with one's own pleasure or advantage at the expense of community well-being" (p. 44). We expect that this preoccupation with fulfilling one's own desires makes greedy people more likely to behave unethically.

Note that existing literature on self-regulation and unethical behavior has typically focused on low will-power (instead of high desire) as the reason for self-regulatory problems. For example, Gino, Schweitzer, Mead, and Ariely (2011) found that if participants' self-control was depleted, they were more likely to cheat on a test and falsely report better performance levels. In similar vein, Barnes, Schaubroeck, Huth, and Ghumman (2011) found that sleep deprivation led to lower self-control, which in turn led to more cheating and unethical behavior at

work. We suggest that a focus on the other element in the equation, namely stronger desire in the form of greed, is equally important to understand unethical behavior. We believe that greed leads to lower self-control, not because it limits will-power, but because it amplifies desires.

Some research suggesting that increasing desire may lead to more unethical behavior. Gino and Pierce (2009) investigated the influence of wealth on unethical behavior, finding that people were more likely to cheat when they were confronted with abundant wealth compared to scarcity. It might be the case that the exposure to large amounts of cash increases desire (maybe even via greed), which makes it harder to exert self-control, and consequently led to more cheating.

In the present research we use various methodologies and different samples to test the prediction that greed is related to immorality and unethical behavior. Moreover, in two of the three studies we test if this relation is mediated by self-control. In Study 6.1 we used survey data (three samples) to investigate the association between dispositional greed and a variety of self-reported transgression or attitudes towards these and investigated if this relationship was mediated by self-control. In Study 6.2 we tested if dispositional greed predicted the acceptance of bribes in an incentivized corruption game. In Study 6.3 we investigated the hypothesized underlying process that greedy people behave more unethically because their heightened desire makes it harder to keep self-control.

## STUDY 6.1

As a first step we collected correlational data on the relationship between dispositional greed and unethical behavior. In Sample 6.1.1 we asked people how often they engaged in different types of unethical behavior. In Samples 6.1.2 and 6.1.3 we asked people to rate how acceptable or justifiable different types of unethical behavior were. See Table 6.1 for an overview of the descriptive statistics of the DGS and the samples used in Study 6.1.

**Table 6.1.** Mean scores and standard deviation of the items of the Dispositional Greed Scale for all samples in Study 6.1.

| | | Sample 6.1.1 *N* = 304 U.S. Based M-Turk | | Sample 6.1.2a *N* = 1000 Belgian adults | | Sample 6.1.2b *N* = 1018 Dutch adults | | Sample 6.1.3a *N* = 269 LISS-panel (Dutch adults) | | Sample 6.1.3b *N* = 822 LISS-panel (Dutch adults) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Items | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| 1. | I always want more. | 2.89 | 2.89 | 2.14 | 1.04 | 2.27 | 1.09 | 2.12 | 1.02 | 2.20 | 0.98 |
| 2. | Actually, I'm kind of greedy. | 2.55 | 2.55 | 2.25 | 1.07 | 2.20 | 1.08 | 1.93 | 0.94 | 1.99 | 0.94 |
| 3. | One can never have too much money. | 3.34 | 3.34 | -- | -- | -- | -- | 2.69 | 1.13 | 2.79 | 1.10 |
| 4. | As soon as I have acquired something I start to think about the next thing I want. | 2.73 | 2.73 | 2.01 | 1.05 | 1.94 | 1.05 | 1.74 | 0.85 | 1.82 | 0.87 |
| 5. | It doesn't matter how much I have. I'm never completely satisfied. | 2.53 | 2.53 | -- | -- | -- | -- | 1.52 | 0.74 | 1.58 | 0.76 |
| 6. | My life motto is 'more is better'. | 2.48 | 2.48 | -- | -- | -- | -- | 1.70 | 0.88 | 1.70 | 0.83 |
| 7. | I can't imagine having too many things. | 2.59 | 2.59 | -- | -- | -- | -- | 1.57 | 0.76 | 1.58 | 0.75 |
| | Mean dispositional greed | 2.73 | 2.73 | 2.13 | 0.93 | 2.14 | 0.98 | 1.89 | 0.72 | 1.95 | 0.70 |
| | Cronbach's α | .86 | | .86 | | .89 | | .90 | | .87 | |

*Note.* In Samples 6.1.2a and 6.1.2b greed was assessed with the short 3-item version of the DGS. Participants were asked to indicate whether the items were descriptive of them. Responses are measured on a 5-point Likert scale ranging from 1, *completely disagree*, to 5, *completely agree*.

**Table 6.2.** Correlations of the DGS with unethical behavior in Study 6.1, Sample 6.1.1.

| Unethical behavior | *M* | *SD* | *r* |
|---|---|---|---|
| Evading fare on public transit | 1.40 | 0.77 | .08 |
| Not mentioning that cashier gave too much change | 2.10 | 1.15 | .20*** |
| Cribbing on an exam | 1.51 | 0.82 | .25*** |
| Cheating on partner | 1.46 | 0.82 | .15* |
| Illegally downloading movies | 2.70 | 1.36 | .16* |
| Call in sick when not feeling like working | 2.24 | 0.90 | .10† |
| Bullying kids in school | 1.78 | 0.87 | .13*** |
| Spreading gossip | 2.32 | 0.82 | .17*** |
| Running a red light by car | 1.91 | 0.76 | .12* |
| Discriminating others (for example on gender, race, or sexuality) | 1.81 | 0.86 | .23*** |
| Average unethical behavior (α = .73) | 1.92 | 0.50 | .29*** |

† p < .10; * p < .05; ** p < .01; *** p < .001

Participants were asked to indicate how often they engaged in each transgression on a 5-point scale ranging from 1 = *never* to 5 = *very often*.

## Results and Discussion

We found clear support for the idea that higher dispositional greed was associated with more unethical behavior. In Sample 6.1.1, eight out of ten transgressions showed a positive correlation between dispositional greed and the extent to which participants indicated that they engaged in that particular transgression. For one transgression we did not find a relationship, and for one we found only a marginally significant positive association. Averaging scores across all transgressions also yielded a positive correlation. See Table 6.2 for an overview of descriptive statistics and correlations.

Samples 6.1.2a and 6.1.2b also showed a positive association between dispositional greed (measured by the 3-item version of the DGS) and unethical behavior. In both samples, we found a positive correlation between greed and the three transgressions, as well as a positive correlation between greed and the mean score of the transgressions (see Table 6.3).

**Table 6.3.** Correlations of the DGS with unethical behavior in Study 6.1, Samples 6.1.2a and 6.1.2b.

| | Sample 6.1.2a: Belgium | | | Sample 6.1.2b: Netherlands | | |
|---|---|---|---|---|---|---|
| Unethical behavior | *M* | *SD* | *r* | *M* | *SD* | *r* |
| Not returning a wallet | 2.28 | 1.28 | .25*** | 1.95 | 1.18 | .19*** |
| Not mentioning extra income on tax return | 2.81 | 1.34 | .12*** | 2.97 | 2.97 | .08* |
| Buying alcohol for a 16-year old in return for €10. | 1.34 | 0.88 | .27*** | | | |
| Buying marihuana for a foreigner in return for €10. | | | | 2.38 | 2.38 | .16*** |
| Average unethical behavior (α = .38; α = .50) | 2.16 | 0.79 | .30*** | 2.43 | 0.96 | .20*** |

* p < .05; ** p < .01; *** p < .001

Participants were asked to indicate how acceptable the transgressions were on 5-point scales ranging from 1, completely unacceptable, to 5, completely acceptable.

**Table 6.4.** Correlations of the DGS with unethical behavior in Study 6.1, Sample 6.1.3a.

| Unethical behavior | *M* | *SD* | *r* |
|---|---|---|---|
| Claiming state benefits which you are not entitled to | 1.47 | 1.28 | .06 |
| Cheating on tax if you had the chance | 2.25 | 1.78 | .14* |
| Taking and driving away a car belonging to someone else | 1.34 | 0.97 | .22*** |
| Lying in your own interest | 3.20 | 1.78 | .28*** |
| Married men/women having an affair | 2.48 | 1.84 | .13* |
| Someone accepting a bribe in the course of their duties | 1.75 | 1.46 | .30*** |
| Avoiding a fare in public transport | 2.54 | 2.07 | .31*** |
| Average unethical behavior (α = .67) | 2.18 | 1.00 | .37*** |

* p < .05; *** p < .001.

Participants were asked to indicate how justifiable it is to engage in these behaviors on 5-point scales ranging from 1 = *never justifiable* to 5 = *always justifiable*.

Samples 6.1.3a and 6.1.3b also showed a positive correlation between dispositional greed and unethical behavior. In Sample 6.1.3a, six out of seven transgressions were positively correlated with dispositional greed (see Table 6.4.). In Sample 6.1.3b all twelve transgressions were positively associated with dispositional greed (see Table 6.5). In both Samples 6.1.3a and 6.1.3b, and aggregated transgression measure also showed a positive association with dispositional greed.

**Table 6.5.** Correlations of the DGS with unethical behavior in Study 6.1, Sample 6.13b.

| Unethical behavior | *M* | *SD* | *r* |
|---|---|---|---|
| Lying that you precisely observed a diet to lose weight | 2.76 | 0.93 | .17*** |
| Buying imitation brand clothing and pretending it's the real thing | 2.70 | 0.96 | .17*** |
| Dishonestly calling in sick to work for one day | 2.00 | 0.91 | .16*** |
| Using computer software or games without paying for it | 2.86 | 1.04 | .17*** |
| Downloading or copying films or music from the Internet without paying for it | 3.20 | 1.04 | .18*** |
| Keeping quiet when a chain store accidentally charges too little for a product | 2.73 | 0.99 | .21*** |
| Not notifying the bank after it accidentally transfers money into your account | 2.27 | 0.96 | .26*** |
| Pretending to others that the price of a product is more than what you actually paid for it | 2.41 | 0.85 | .19*** |
| Claiming a guarantee on a product for which the term of the guarantee has actually expired | 2.90 | 0.96 | .15*** |
| Switching price tags in a supermarket in order to get something more cheaply | 1.58 | 0.66 | .15*** |
| Dishonestly reporting something as stolen to a travel insurance | 1.60 | 0.67 | .16*** |
| Taking along a towel or another 'souvenir' from an international hotel or restaurant | 2.05 | 0.86 | .17*** |
| Average unethical behavior (α = .86) | 2.41 | 0.58 | .28*** |

† p < .10; * p <.05; ** p < .01; *** p < .001

Participants were asked to indicate how acceptable the transgressions were on 5-point scales ranging from 1 = *entirely unacceptable* to 5 = *entirely acceptable*.

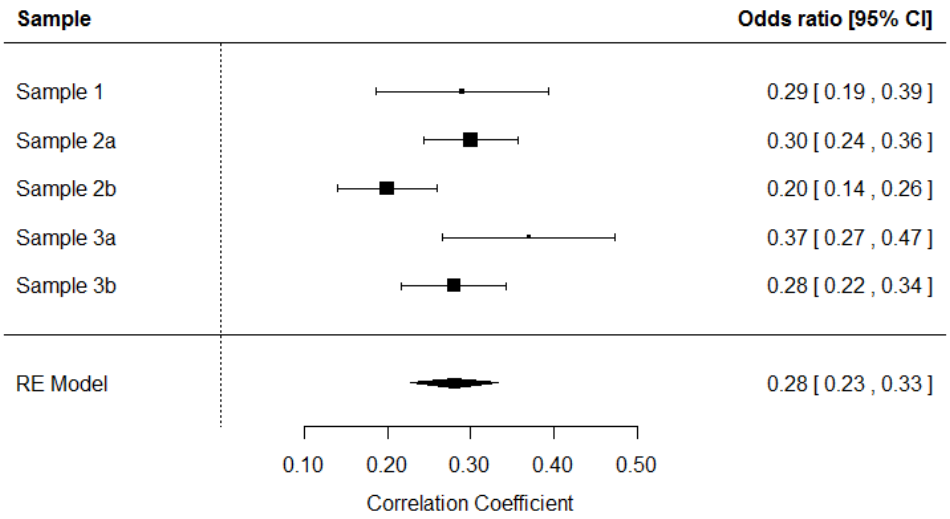



**Figure 6.1.** *Forest plot of the mean correlations between dispositional greed and unethical behavior in all samples of Study 6.1.*

## Meta-analysis

To assess the average correlation between dispositional greed and unethical behavior we conducted a random effects meta-analysis on the average correlation between dispositional greed and unethical behavior on the five samples in Study 6.1 (see Figure 6.1). The mean effect size across all five samples was r = .28, indicating that there is a moderate correlation between dispositional greed and unethical behavior. The test for heterogeneity is significant, $Q(\text{df} = 4) = 10.30$, $p = .04$, implying that there are likely moderators that influence the magnitude of the effect between dispositional greed and unethical behavior.

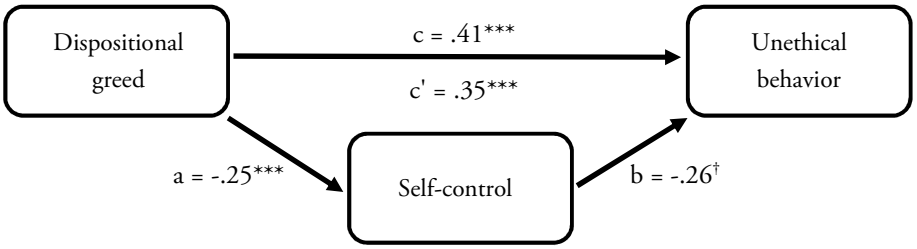
## Mediation analyses

Because part of the participants in Sample 6.1.3a and 6.1.3b had previously filled in the self-control scale, this gave us the opportunity to examine the idea that greed leads to more unethical behavior via a lower self-control. We ran two mediation analyses, following the bootstrapping procedure by Preacher and Hayes (2008) with bias corrected intervals and 10,000 iterations. Figure 6.2

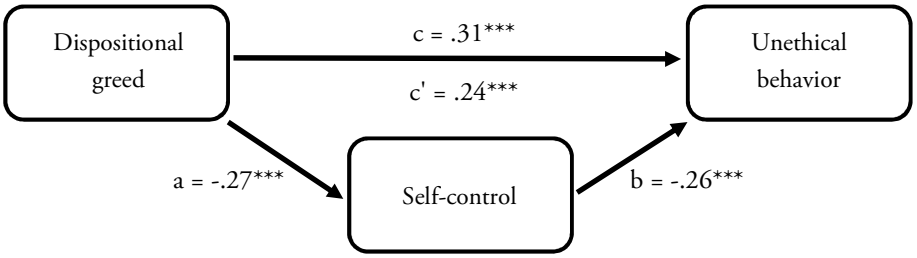
contains the unstandardized regression coefficients of Sample 6.1.3a and 6.1.3b. For both samples, the 95% confidence interval (CI) for the indirect effect of self-control did not include zero (95% CI Sample 6.1.3a: lower = .01, upper = .17; 95% CI Sample 6.1.3b: lower = .05, upper = .11), indicating that self-control statistically mediated the relationship between dispositional greed and unethical behavior. We find these results especially telling because the different constructs (greed, self-control, and the transgressions) were assessed at different points in time.

To summarize, using three different samples, we found that dispositional greedy individuals find a variety of transgressions more acceptable and justifiable, and indicate that they more frequently transgress. Across all five studies, we find that this effect is moderate. In addition, Samples 6.1.3a and 6.1.3b showed evidence for the relationship between greed and unethical behavior being mediated by self-control.

**Sample 6.1.3a**




**Sample 6.1.3b**




† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant.

**Figure 6.2.** *Mediation analyses testing the role of self-control.*

## STUDY 6.2

The next step was to investigate if dispositional greed predicted actual immoral behavior. In order to test this we related participants' responses on the DGS to behavioral decisions in a corruption game (Frank & Schulze, 2000).

### Method

Participants were 172 first year students ($M_{age}$ = 19.68, $SD_{age}$ = 2.14, 19.8% male, 80.2% female) that participated in return for course credit. Participants completed the corruption game developed by Frank and Schulze (2000). Participants were asked to imagine a situation in which the psychology study association had lost 200 Euros (it fell down a drain pipe and could only be retrieved by a plumber company). The study association had asked the participant to choose the most favorable offer (for the study association). Ten plumber companies had placed an offer that only the participant knew. Each offer consisted of two parts, first, the price the study association had to pay for the plumber's service, and second, the amount of money the participant would receive if he or she picked that particular company. The scheme with offers was constructed in such a way that the more money the participant would receive, the more money the study association had to pay to the plumber company. Participants had to choose one of the ten plumber companies. In the best case for the study association, the participant would pick the plumber who charged 20 Euro (leaving 180 Euro for the study association), however, in that case the participant received no bribe (0 Euro). In the worst case for the study association, the participant would pick the plumber who charged 200 Euro (leaving no money for the study association), in that case the participant would receive a bribe of 144 Euro.

It was made clear to the participants that at the end of the week we would randomly select one participant and that this participant (and the study association) would get paid according to that participants' choice. For example, if a participant had chosen company A5, this would mean that the study association would receive 100 Euro (200 Euro are recovered from the pipe drain

minus the 100 Euro for the service of the plumber company) and the participant would receive the bribe of 64 Euro.

After participants had made their decision in the corruption game they were asked to fill out the 7-item DGS. On average, participants scored 2.47 (*SD* = 0.69) on the 5-point greed scale. Reliability of the scale was good (α = .81). Of the 172 participants, 78.5% of the participants accepted a bribe, and the average bribe was €70.28 (*SD* = 36.10).

### Results and discussion

An ordered probit regression analysis was conducted to investigate the effect of dispositional greed on corruption. Greedy participants were more likely to choose a company that offered a higher bribe, $b = 0.38$, *s.e.* = 0.12, *Wald* = 10.90, $p < .001$. To further explore the relationship between greed and bribes we conducted a binary logistic regression analysis to see if greed predicts whether people accept a bribe or not and a linear regression analysis to investigate if they accept higher bribes (for those who accepted a bribe in the first place). The binary logistic regression analysis revealed that dispositional greed predicted whether people accepted a bribe or not, odds ratio = 2.03, *Wald* = 5.80, $p = .016$. This indicates that an increase of 1 point on the DGS doubles the probability of accepting a bribe. Lastly, we looked at the relationship between greed and the amount of bribe that people accepted (for those who had chosen to accept a bribe). The higher people scored on dispositional greed, the higher the bribe was they accepted, $\beta = .19$, $t(134) = 2.24$ $p = .03$.

## STUDY 6.3

Thus far we found support for the idea that greedy people are more lenient when it comes to unethical behaviors; they evaluate them as more acceptable and they indicate to engage in them more often (Study 6.1). We also found that the greedy are more susceptible to bribes (Study 6.2). The results of Study 6.1 further suggest that the relationship between greed and unethical behavior runs via lowered self-control in greedy people. To further test this idea of mediation through self-control we designed Study 6.3. In this study we presented

participants with two scenarios in which they could choose to transgress or not. The *Wallet* scenario describes the dilemma of finding a wallet with money and an ID in it (do you keep the money or not?). The *Attractive person* scenario describes the dilemma of being romantically approached by an attractive person while you are in a relationship (do you act on the temptation or not?). The transgressions were tempting, and participants would need willpower to resist them. In this study we assessed how greedy people were, whether they would act on the temptation, how desirable they saw the temptations to be, and how much willpower they would need to refrain from transgressing. This allows for testing both elements of self-control as potential mediators of the effects of dispositional greed.

## Method

Participants were 302 MTurk-workers with location restriction set at the U.S.A. ($M_{age}$ = 33.08, $SD_{age}$ = 10.28; 54.6% male, 45.4% female) who participated in return for $0.30. Participants read both scenarios and answered the accompanying questions. In the *Wallet* scenario participants read the following:

> You are walking down the street when you come across a wallet lying on the ground. You open the wallet and find that it contains $50 in cash as well the owner's driver's license. From the credit cards and other items in the wallet it's very clear that the wallet's owner is wealthy. You, on the other hand, have been hit by hard times recently and could really use some extra money. You consider sending the wallet back to the owner without the cash, keeping the cash for yourself.

We then asked them the following questions: "Would you keep the money you found in the wallet in order to have more money to yourself?" (ranging from -3 = *definitely no* to 3 = *definitely yes*; $M$ = -1.19; $SD$ = 2.18); "How desirable would it be for you to keep the money yourself?" (ranging from -3 = *very undesirable* to 3 = *very desirable*; $M$ = 0.87, $SD$ = 2.21); and "How much

willpower would you need to return the wallet?" (ranging from -3 = *no willpower* to 3 = *a lot of willpower*; $M$ = -0.25, $SD$ = 2.22).

In the *Attractive person* scenario participants read the following:

> You are away on a trip for work and spend a few days in a hotel in a large city on the other side of the country. You are the only one from your company and do not know anybody in that city. On the third night you decide to go out and have a drink in one of the local bars. When you notice an attractive person at the bar, s/he also notices you and is clearly interested. You start chatting and before you know it is a few hours and a few drinks later, and you are having the time of your life. It is clear that the two of you feel very much attracted to each other. You are actually aroused and excited. Now, s/he asks you to come to his/her hotel room and spend the night, no strings attached. The both of you are in a relationship and do not want to ruin that. But this night brings an unexpected opportunity to make out with a beautiful person, and no one has to find out anything.

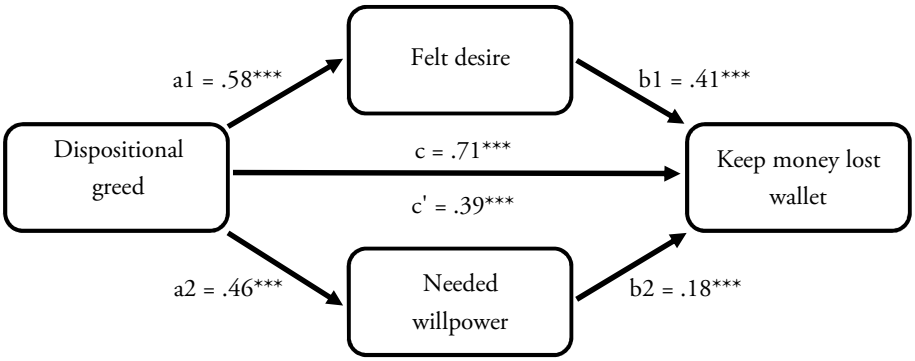
We then asked participants the following questions: "Would you accept the invitation to spend the night with this attractive person?" (ranging from -3 = *definitely no* to 3 = *definitely yes*; $M$ = -1.18, $SD$ = 2.09); "How desirable would it be for you to spend the night with this attractive person?" (ranging from -3 = *very undesirable* to 3 = *very desirable*; $M$ = 0.78, $SD$ = 2.16); and "How much willpower would you need to decline the invitation?" (ranging from -3 = *no willpower* to 3 = *a lot of willpower*; $M$ = 0.73, $SD$ = 2.15).

In addition to answering these questions about the two scenarios they also completed the DGS ($M$ = 2.73, $SD$ = 0.96). The order in which the scenarios were presented and the order between scenarios and the DGS were counterbalanced, which did not affect the results.

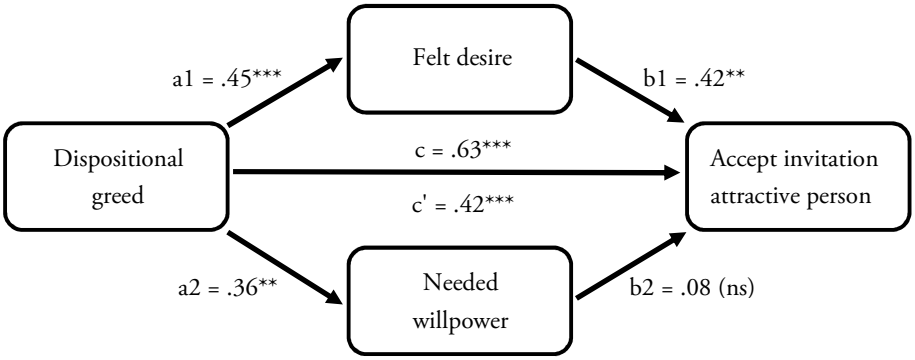
## Results and discussion

Using linear regression analyses, we first investigated whether dispositional greed was associated with the transgressions. As expected, dispositional greedy individuals indicated that they were more likely to keep the money to themselves, $\beta = .31$, $t(301) = 5.64$, $p < .001$. In addition, greedy individuals indicated that they were more likely to cheat on their partner, $\beta = .29$, $t(301) = 5.27$, $p < .001$. This replicated the main finding of the present research that greed is related to immorality and unethicality.

### Wallet scenario




### Attractive person scenario




* $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant.

**Figure 6.3.** *Mediation analysis testing the role of desire and willpower in Study 6.3.*

The further aim of Study 6.3 was to investigate if the relationship between greed and transgressions was mediated by self-control. More specifically, we wanted to test if higher levels of desire in greedy individuals would (partially) account for why they transgress. A mediation analysis of dispositional greed on returning the wallet revealed that the relationship between the two was partially mediated by desire (95% CI: lower = .14, upper = .36) and willpower (95% CI: lower = .03, upper = .17). If we contrast the two mediators, we find that desire is a stronger mediator than willpower (95% CI: lower = .03, upper = .30).

A mediation analysis of dispositional greed on accepting the offer of the attractive person (and thus cheat on their partner) revealed that the relationship between the two was partially mediated by desire (95% CI: lower = .08, upper: .31), but not by willpower (95% CI: lower = -.01, upper = .09). As expected, if we contrast the two mediators, we again find that desire is a stronger mediator than willpower (95% CI: lower = .05, upper = .31). For a graphical representation of the mediation analyses see Figure 6.3. These results suggest that greedy people engage more in unethical behavior because they have less self-control especially because greed seems to increase desire, making it harder to refrain from transgressing.

## GENERAL DISCUSSION

The goal of this research was to investigate the often assumed link between greed on the one hand, and unethical behavior and immorality on the other. In line with common conceptions about greed, we found in three studies that dispositional greed was indeed associated with more unethical behavior. Combining responses of over 3000 participants, Study 6.1 revealed that dispositional greedy individuals found a wide range of transgressions more acceptable and indicated that they had more often engaged in a variety of transgressions. In addition, we found that the association between dispositional greed and acceptability ratings of transgressions was statistically mediated by individual differences in self-control.

Study 6.2 found that dispositional greed predicted people's decisions in an incentivized corruption game. Participants had to pick a plumber company for their study association. There were multiple plumber companies they could choose from, all ranging in the price for their service to the study association, and in the amount of money they offered as a bribe. Greedy participants were more likely to choose a company that offered a bribe, and were more likely to choose a company that offered a larger bribe compared to a lower bribe.

Study 6.3 further investigated the mediating role of self-control. Participants were asked to imagine two situations in which transgressing would have a desirable outcome (not returning a lost wallet; cheating on a partner with an attractive other person). For both situations participants had to indicate if they would transgress or not, and had to indicate how desirable it would be to transgress and how much willpower they would need to refrain from transgressing. Again, we found that the relationship between greed and unethical behavior was mediated by self-control. Greedy individuals experience especially more desire and are therefore more easily lured into unethical behavior.

## Contributions and implications

The idea that greed is immoral is old and widespread (Oka & Kuijt, 2014). However, until recently, greed was mostly neglected in empirical research due to problems defining the construct (Wang & Murnighan, 2011). Greed has more clearly been defined (Seuntjens et al., 2015a), and research on greed has spurred in recent years (e.g., Gilliland & Anderson, 2014; Haynes, Hitt, & Campbell, 2015; Haynes et al., 2014; Krekels & Pandelaere, 2015; Mussel, Reiter, Osinsky, & Hewig, 2015; Seuntjens et al., 2015b). The current research complements the existing literature on greed by demonstrating its relationship with unethical or immoral behavior. Several studies have suggested that greed leads to unethical behavior, but could not explicitly test this link because greed was confounded with self-interest or was inferred rather than measured (e.g., Cohen et al., 2009; Gneezy et al., 2015). To our knowledge, the present research is the first to show empirically that individual differences in greed reliably predict how acceptable people find transgressions and how often they transgress.

In addition, this research demonstrated the mediating role of self-control in the relationship between greed and unethical behavior. Multiple studies have found that low self-control is associated with unethical behavior. Self-control is usually seen as a battle between desire and willpower (Hoch & Loewenstein, 1991). Studies investigating unethical behavior and self-control failure have typically focused on how ego depletion lowers will-power, which in turn makes people more likely to act unethically (Gino et al., 2011; Barnes et al., 2011). In the current research we show that self-control failure is not only the result of low willpower, but can also occur when desires are elevated. We show that greedy individuals are more tempted by the desirable outcome related to the unethical behavior, and therefore are more likely to act unethically.

The current findings may also shed light on the discussion of whether greed is good or bad. Traditionally, greed has been associated with unethical behavior and immorality. Most major religions, as well as famous philosophers have argued that greed is bad (Oka & Kuijt, 2014). However, from an economics standpoint greed is also related to positive outcomes, as greed motivates economic development (Greenfeld, 2001). In the current research we find that greed is indeed associated with unethical behavior. Greedy people were more acceptable towards, and more likely to engage in a variety of transgressions. Although this does not answer the question if greed is inherently bad, it does show that greed can have negative consequences.

In the last decade a number of companies and organizations was confronted with large fraud cases and other financial scandals. The insight that greed may partially explain this behavior might help companies with the prevention of these types of scandals. Situations that could elicit greed, such as a competitive environment or high bonuses, could lead to people behaving more unethically. Previous research has found that companies with greedy CEOs perform worse than companies with less greedy CEO's, which is partly due to the misuse of the financial resources of the firm (Haynes et al., 2014; see also Haynes et al., 2015). Insights in the relationship between greed and unethical behavior are thus helpful because it can help interventions that prevent unethical behavior as a result of

greed. This can be helpful at all levels of a company, because greed-fueled unethical behavior can be the result of greedy CEO's that commit fraud, to employees that steal office supplies or dishonestly calling in sick for work.

## Limitations and directions for further research

In the current research we argued that greed leads to more unethical behavior because it lowers self-control. People usually fail to exert self-control when desires are stronger than willpower (Hoch & Loewenstein, 1991). We hypothesized that because greed is an insatiable desire for more of something, greedy people would be more likely to fail in self-control. Although we do find that the relationship between greed and unethical behavior is mediated by self-control, this does not mean that there are no other underlying mechanisms that could explain this relationship. One of the mechanisms that could play a role is moral disengagement. Moral disengagement refers a process in which people disengage their internal moral standards from behavior and explains why normal people can behave unethically without feeling bad (Bandura, 1986). Previous research has found that moral disengagement is influenced by a variety of dispositions including cynicism and empathy (Detert, Treviño, & Sweitzer, 2008). A possible explanation for why dispositional greedy individuals are more prone to behave unethically could be that they are also more prone to moral disengagement. If they are less likely to feel bad about their transgressions, it is likely that they more often engage in this type of behavior.

A related alternative explanations is that greed individuals simply do not think about the consequences of their behavior. Previous work shows that greed is associated with having a tunnel vision and being goal oriented (Seuntjens et al., 2015a). Being focused on one specific goal can make people inattentive to other things which in turn can lead to more unethical behavior (Schweitzer, Ordóñez, & Douma, 2004; Welsh & Ordóñez, 2014). It might be that greedy people are so focused attaining their goal that they just do not consider the consequences of their behavior on others.

Further research could also investigate what other cues could increase desire. Previous research by Crusius and Mussweiler (2012) shows that increasing desire via upward comparison (e.g., a neighbor receiving nice chocolates, cookies, or ice cream) led to more envy and anger. This was especially the case when willpower was already low (because participants were intoxicated with alcohol or a cognitive load task). It would be interesting to see if greed could be elicited by upward social comparisons and in this way could lead to more unethical behavior.

In the current research we solely focused on the relationship between individual differences greed and unethical behavior. However, greed can be dispositional as well as situational. Investigating the relationship between situational greed and unethical behavior would be interesting for two reasons. First, it could give insights into the causality of the relationship between greed and unethical behavior. In the current research we assumed that greed would lead to unethical behavior instead of vice versa, however, we could not test if this was indeed the case. Second, it would be interesting to see what types of stimuli induce greed. Gino and Pierce (2009) found that abundant wealth compared to scarcity, led to more immorality. Abundance might be one of the triggers of greed. If so, greed might also be elicited by the money primes in the research on the psychological effects of money. Money primes make people more self-sufficient (Vohs, Mead, & Goode, 2006) and more unethical (Kouchaki et al., 2013). It would be interesting to investigate if these effect occur through the effects of money on greed, or whether these are direct effects of money primes, or both.

## Concluding remarks

The idea that greed is unethical is widespread. The current research confirms the idea that greed is associated with unethical behavior. We find that dispositional greedy individuals evaluate a variety of transgressions more acceptable and are more likely to engage in these transgressions. The relationship between greed and unethical behavior can be partially explained by lower self-control. Greedy individuals find the desirable outcomes associated with unethical

behavior more tempting, and as a result are more easily lured into unethical behavior.

# CHAPTER 7

# CONCLUSIONS AND DISCUSSION

In the previous chapters I described my attempts to gain more insights into the psychology of greed. Now it is time to reflect on what this dissertation has taught us. This dissertation can be divided in two parts. The first part focused on *what greed is*. As I mentioned before, greed is an understudied topic, and one of the reasons for this is the disagreement on how to define greed. The aim of Part I was to get a clearer definition of greed and to construct a reliable instrument to measure greed. In Part II I looked at the behavioral implications of greed, or *what greed does*. People have ample assumptions about how greed influences behavior, nonetheless, few of these assumptions have actually been tested. In this part I thus looked at several of these proposed behavioral consequences of greed. In this final chapter, I will summarize the findings of this dissertation, and go beyond those findings by discussing the implications of the research presented. Then I will discuss several interesting new questions inspired by my research findings so far.

## SUMMARY OF FINDINGS

### Part I: What greed is…

Despite the numerous writings about greed, there is surprisingly little empirical research that has investigated greed. One plausible reason for this neglect might be that people seem to have difficulties defining greed (Wang & Murnighan, 2011). In order to overcome this hurdle, and to make it easier to conceptualize greed, Chapter 2 describes a prototype analysis to gain more insight in how people typically define greed. Prototype analysis is found to be a useful way to conceptualize fuzzy constructs such as emotions and other psychological constructs (e.g., Fehr & Russell, 1984; Rosch, 1975).

In Chapter 2 I report on five studies that were conducted to develop the greed prototype. The first step was to get an idea of the things that come to mind when people think about greed. The aim of Study 2.1 ($N$ = 195) was thus to get a list of things that people find important characteristics (exemplars) of greed. In order to get this list, participants were asked to name as many exemplars of greed that they could think of. Then, these lists of exemplars were structured in broader categories by two coders. For example, related exemplars such as "never enough" and "insatiable" were placed in the broader category *never satisfied.* This resulted

in 46 broader feature categories that were used to describe greed. Then two other coders assigned each exemplar to one of these feature categories. Of course, not all of the features of greed that people came up with are equally important to describe greed. For example, the feature *acquisitiveness* or *never satisfied* might be more important to describe greed than *status* or *addiction*. In order to test the relative importance of each feature, in Study 2.2 ($N$ = 215) an independent group of participants was asked to rate each of the 46 features on the centrality to greed. They were presented with each feature, and were asked how much this feature was related to the construct greed. Based on a median split, the 23 features that were rated as most related were classified as central features, whereas the 23 features that were rated lowest on relatedness to greed were classified as peripheral features of greed. This study thus further investigated what types of features people use to conceptualize greed.

To test that the central features of greed are indeed more central to greed, a couple of other studies were conducted to validate the greed prototype. Study 2.3 ($N$ = 102) tested if people are better at remembering central features of greed compared to peripheral features. Features that are more important to describe greed, should be more easily activated when people think about the construct (e.g., Hassebrauck, 1997). And indeed, people were better at recalling and recognizing the more central features of greed. In similar vein, Study 2.4 ($N$ = 87) looked at the response times that people had when they had to classify if a feature was related to greed or not. Besides remembering central features easier, people should also be better and faster at classifying a feature as part of greed if this feature is more central (Fehr, Russell, & Ward, 1982). As expected, people more easily classified central features of greed as part of the prototype than the peripheral features. Lastly, Study 2.5 ($N$ = 144) further validated the prototype by investigating the role each of the features plays in people's daily experiences of greed. One would expect that the more central features of greed are more present when people feel greedy. In order to test this, participants were asked to describe a situation in which they were greedy or an ordinary situation. Then, participants had to rate how present each of the greed features was in the situation described. As expected, central features were more present in greedy situations.

The five studies in Chapter 2 give thus more insight into the features that people use to conceptualize greed. The central features that people use to describe greed can be used to get a better conceptualization of what greed is. The prototype analysis revealed that the two core elements that people use to describe the experience of greed are the desire to acquire more and the dissatisfaction of never having enough. In other words, this led me to define greed as the insatiable desire for more.

Knowing how to define greed, led to the next logical step: developing an instrument to measure greed. In Chapter 3 I report on the construction of an instrument to measure how people differ in their tendencies to be greedy, the Dispositional Greed Scale (DGS). The first step was to construct a list of potential items to measure dispositional greed. Using the results of Chapter 2 as input, 20 items that tapped into the idea of greed as wanting to acquire more and never being satisfied were constructed. Study 3.1 ($N$ = 6092) was set up to investigate which of these 20 items could be used to construct a stable, reliable, and valid scale. A first sample of 167 participants was asked to fill out the potential items of the DGS. In addition, this sample filled out a variety of other instruments that measure constructs potentially related to greed. Using Principal Components Analysis I looked at the structure of the initial 20 items and eventually came up with a unidimensional scale with seven items (see Table 7.1). Further inspection of this scale revealed that it was internally consistent, reliable, and temporally stable. In addition, this scale had good construct validity, as it was related, but different, from theoretically related constructs, such as maximization, self-interest, envy, and materialism. Three other samples (using almost 6000 participants) were used to further demonstrate the consistency, reliability, temporal stability, and construct validity of the DGS.

Because Study 3.1 found that greed was highly correlated with materialism, the discriminant validity for dispositional greed and material values was tested in Study 3.2 ($N$ = 290). Participants indicated to what extent they experienced a variety of non-material and material desires. As one would theoretically expect,

the results of this study suggest that although the constructs are related, greed is a broader construct than materialism that also predicts non-material desires.

In the next studies the predictive validity of the scale was investigated. A scale measuring individual differences in greed should of course predict greedy behavior. Study 3.3 ($N$ = 300) looked at the relationship between greed and behavior in a dictator game. In this game, participants were asked to divide $10 between themselves and another person. The participant had complete control over the situation, as the other player had no say in the division. As expected, greedy people kept more money to themselves than people that were less greedy. In Study 3.4 ($N$ = 603) greed was related to behavior in an ultimatum game. Again, a division of $10 between two people had to be made. The difference between the two studies was that in this case, the receiver of the money did have a say. If this person did not like the proposed offer, he/she could decline, and both people would end up with nothing. Again, I found that greedy people kept more money to themselves than less greedy people. In addition, I also found that greedy people were more likely to decline low offers, suggesting that they are not as easily satisfied.

Lastly, Study 3.5 ($N$ = 305) investigated how greed is related to behavior in a harvesting game. In this game, participants imagined owning a timber company for which it was best to harvest as much forest as possible. However, if all companies behaved like this, the forest had not enough time to regrow, and would eventually vanish. Thus, on the short term harvesting as much as possible led to more profit, but on the long term it led to no profit at all. As expected, greedy individuals harvested more of the forest.

In sum, based on the idea that greed is the insatiable desire for more of something, an instrument measuring the tendency of people to feel this way was constructed. This scale was reliable and valid, and predicted a variety of behaviors often attributed to greed. Although I already looked at some behavioral consequences in the scale development, I expanded on this in Part II of the dissertation.

## Part II: What greed does…

The second part of this dissertation focused more on the behavioral consequences of greed. Greed is often seen as an important motive for financial behavior. On the one hand, people relate greed to prosperity (Greenfeld, 2001), but on the other hand people also see greed as a cause of financial problems, such as debt (Lunt & Livingstone, 1991). In Chapter 4 ($N$ = 3899) I wanted to see how greed relates to financial behavior using a large sample of high school students. The data that for this study was provided by Nibud, the Dutch National Institute for Family Finance Information. Because of a constraint on the number of questions, first a shorter version of the DGS had to be constructed. In order to do so, all data from Chapter 3 was re-analyzed to come to a 3-item solution that performed well. Then, this 3-item version of the DGS was administered to the high school students alongside a variety of questions about their financial situation. More specifically, in this study, the association between greed and income, expenses, savings, and debts was investigated. Dispositional greed was associated with positive, as well as negative financial outcomes. On the one hand, greedy individuals had more income each month, but on the other hand, they also spend more money, had less savings, and more debt. Thus, these results suggest that greed indeed motivates people's financial decisions. On the one hand, it might motivate them to acquire more, but on the other hand, they also seem to spend these acquired funds more.

Chapter 5 further investigated the acquisitive nature of greed. Making use of a large sample of high school students, Chapter 4 suggested that greedy secure more resources each month. In this chapter, this idea was further explored in a more controlled setting. More specifically, in this chapter, I did not only look at whether people acquire more resources, but also if they acquire resources that they do not have use for. To investigate this, greed was related to behavior in the overearning paradigm (Hsee, Zhang, Cai, & Zhang, 2013). In this paradigm, participants first had the opportunity to earn resources (in this case: earn chocolates by pressing a button that produced annoying white noise), then they had time to use these resources (in this case: consume chocolates). Both earning and consumption of the chocolates was restricted to five minutes, so earning

more chocolates than one could consume resulted in overearning. In Study 5.1 ($N$ = 156) I found that greedy individuals indeed earned and overearned more.

Study 5.2 ($N$ = 297) looked at the motivations for people to (over)earn. According to Mill (1844) there are a few motives that drive economic behavior (Heukelom, 2014). On the one hand, people are motivated to work as less as possible (the aversion to labor), but on the other hand, people want to acquire new resources (the pursuit of wealth). Based on the earlier definition of greed as an insatiable desire for more, I expected that the relationship between greed and (over)earning could be explained by greedy people having a stronger pursuit of wealth, but not less aversion to labor. Participants were asked how much they liked the idea of earning chocolates (the pursuit of wealth) and how much they would dislike the white noise (the aversion to labor). As expected, greedy people liked the idea of earning more, but did not like the work more.

Lastly, Study 5.3 ($N$ = 185) investigated if the relationship between greed and overearning would remain if people had the opportunity to learn from past behavior. It could be argued that the results in Study 5.1 were due to people being uncertain about the number of chocolates they could eat. In order to control for this, participants in Study 5.3 completed the study twice, with a four-week interval. Even the second time, there still was a relationship between greed and overearning. Thus, where Chapter 4 found that greedy people acquire more resources, Chapter 5 went a step further, and found that greedy people even want to acquire resources so much that they have work to gain things they have no use for.

In Chapter 6 I investigated how far greedy people are willing to go to get what they want. Are greedy people willing to behave unethically to get what they want? There are numerous situations in which we have to decide between doing the right thing or doing the right thing for ourselves. For example, when one finds a lost wallet the good thing would be to locate its owner, but it is also tempting to keep the money inside the wallet for oneself. In Chapter 6 I investigated if greedy people are more likely to behave unethically. Using various samples, Study 6.1 ($N$ = 3413) revealed that greedy people find a variety of transgressions more

acceptable and more often engage in transgressions. For example, greedy people find it more acceptable to lie in their own interest or to accept bribes. In addition, they indicate that they are more likely to illegally download movies or cheat on their partner. This relationship was mediated by self-control. That is, greedy participants have lower self-control, which partially predicts the extent to which they find transgressions acceptable.

Where Study 6.1 relied on self-report measures on how acceptable transgressions were or how often people engaged in transgressions, Study 6.2 ($N$ = 172) investigated this relationship using an incentivized corruption game (Frank & Schulze, 2000). In this game, participants had to make a decision to hire a plumber company for their study association. They could choose between ten companies ranging in the price for their service and the bonus that participants would receive if the company was chosen. Greedy participants more often chose for a more expensive company that offered a higher bonus (a kick-back that is essentially corruption) to the participant.

Lastly, Study 6.3 ($N$ = 302) further investigated the mediating role of self-control. Self-control is typically seen as a battle between desire and willpower (Hoch & Loewenstein, 1991). As greed is associated with stronger desires, it was expected that greedy people have lower self-control, not because they have less willpower, but because they are more tempted by the benefits of transgressing. The results of this study reveal that this is indeed the case. Greedy people are more tempted by the benefits of transgressing than less greedy individuals. Thus, greedy people seem to go further to get what they want. They are more tempted by the things they desire and therefore more easily lured into unethical behavior.

In sum, based on the idea from Chapter 2 that greed is the insatiable desire for more of something, I found in three chapters support for the behavioral manifestations of dispositional greed. Greedy people earn more (too much so), spend more, are more in debt, and are willing to bend the rules in their favor. These data are among the first to reveal what greed does behaviorally and they shed light on the implications of this important motivation.

## MEASURING INDIVIDUAL DIFFERENCES IN GREED

Having established the reliability and validity of the Dispositional Greed Scale in the previous chapters, it is now the time to put these findings in perspective, and to relate them to recent developments in the literature. As I already briefly mentioned in the Introduction, three other scales to measure greed have been developed independently and in parallel to the one discussed in this dissertation. In addition to the scale presented in this dissertation, a same-named Dispositional Greed Scale was constructed by Krekels and Pandelaere (2015), a trait greed scale by Mussel, Reiter, Osinsky, and Hewig (2015), and a greed subscale that is part of the Virtues and Vices Scale (Veselka, Giammarco, & Vernon, 2014). In this section I will first describe how each scale was developed and the similarities and differences with our scale. After that I will present data from a new study, conducted to compare the performance of the four scales. For an overview of the items of all four scales see Table 7.1.

### Dispositional Greed Scale (Chapter 3)

The starting point for the Dispositional Greed Scale presented in the current dissertation was the prototype analysis in Chapter 2. Based on over 700 participants' conceptions about greed, the prototype analysis revealed that *desiring more* and *never being satisfied* are the core elements of greed. Based on these insights a list of 20 potential items was constructed that was administered to the first sample of Study 3.1 ($N$ = 167). Principal Components Analysis revealed that the items could be reduced to either a unidimensional scale or a three-dimensional scale. The first factor consisted of items measuring the insatiable desire for more of something. The second and third factor consisted of items that were more related to (non)generosity and loss aversion. As the first factor was considered to be the core of greed, this factor was retained for the final scale. Based on this consideration, the final DGS consists of seven items measuring the tendency to always want more and to never be satisfied. In addition, the four samples in Study 3.1 (total $N$ = 6092) also demonstrated that the scale was reliable, temporally stable, and valid. The validity of the scale was further investigated in four other studies (total $N$ = 1496), where it was

demonstrated that greed is different from materialism, and predicts greedy behavior in dictator, ultimatum, and common goods games.

## Dispositional Greed Scale (Krekels & Pandelaere, 2015)

The scale most similar to the scale presented here is the same named 6-item Dispositional Greed Scale developed by Krekels and Pandelaere (2015). They define greed as "an insatiable desire for more resources, monetary or other" (p. 225), a definition of greed that is very similar to the outcome of the prototype analysis described in Chapter 2. Building upon insights based on the existing literature and focus groups, 25 potential items were constructed. A first sample of 317 participants filled out these questions, and based on exploratory factor analyses this list was reduced to the final 6-item DGS. With this initial sample of 317 participants and a second one ($N$ = 218) the DGS was further validated. Dispositional greed was related to constructs as materialism, competition, and productivity orientation.

On the item level, this scale is very similar to the scale developed in Chapter 3, which is reassuring. If two independent groups of researchers develop a scale to measure an individual difference, and end up with such similar scales, this indicates that the scales measure what they are supposed to measure. The biggest difference between the two scales is that the scale by Krekels and Pandelaere (2015) includes two reverse-coded items. Although reverse-coded items have historically been included to prevent inattention and acquiescence, recent research in scale development argues that there are both statistical and theoretical considerations to not include reverse coded items when developing a scale. First, Likert-scales including reverse-coded items often have unexpected factor structures (Swain, Weathers, & Niedrich, 2008). Second, it is often not clear what the opposite of a certain construct is. In this case, it is not clear what the opposite of being greedy is. Is not being greedy, being generous? Or is not being greedy, being easily satisfied? In Chapter 3, I chose to not include reverse-coded items in the scale (also because the brevity of the scale runs little risk for inattention), however, for measuring greed it does not seem to make a large

difference. Both scales measure greed reliably and find similar patterns with related constructs.

## Trait Greed Scale

Another scale to measure greed was developed by Mussel et al. (2015). These authors "desire to get more at all costs, including the excessive striving for desired goods and the willingness to accept that such striving may be at the expense of others" (p. 126). Items were based on this definition and administered to 640 students. The final 7-item scale was further validated in several other studies. Greed was negatively associated with agreeableness and positively with neuroticism ($N$ = 71), greed was associated with a higher aimed income, related to risky investments, but not secure investments ($N$ = 162), and taking more in a common goods dilemma ($N$ = 92). Although the scale does include more general items about the insatiable desire for more, it also includes specific items about cheating and damaging others. The definition that these researchers use to define greed deviates from how people typically define greed (Chapter 2) and is more specifically focused on harming others. Although greedy people indeed harm others more (Chapter 6), I believe this is more a consequence of greed, rather than inherent to being greedy. Thus, the definition of greed these authors use, is narrower, as they include the detrimental consequences for others in their definition.

## Virtues and Vices Scale – greed subscale

The Virtues and Vices Scale (VAVS) by Veselka et al. was published in 2014. Because this scale did not include 'greed' in the title, abstract, or key words, I only found out about this scale after the data collection of Chapter 3. The authors see greed as a sin, and similar to Mussel et al. (2015) they focus on greed as a tendency to hurt others to gain more. Here, greed is defined as the "tendency to manipulate and betray others for personal gain" (p. 76), a definition that is even more narrow than the one by Mussel et al., as the specify how greed leads to people attaining more (by manipulation and betrayal). In a first study ($N$ = 1507), a total of 175 potential items was administered to the participants. Based on inspection of the items and on the structure of the subscales of the seven vices,

several items were deleted or revised, leaving a list of 108 potential items. In the second study ($N$ = 253), the 70 items (10 per vice) that performed best were retained for the final VAVS. The greed subscale correlated with all the other vices, as well as with Machiavellianism, narcissism, and psychopathy.

## Assessing the four greed instruments

In the previous part I discussed how greed was defined in each scale and how the scales were developed. As a next step, I conducted a new study ($N$ = 300, $M_{age}$ = 36.51, $SD$ = 11.26, 60.00% male) in which participants filled out all four greed instruments (30 items in total, all presented in a different randomized order for each participant). I first assessed each scale individually and then looked at how all four measures perform combined. As I used a short 3-item version of the DGS in Chapter 4, I also assessed the short version in this study.

In general, all scales seem to be reliable (see Table 7.1), and although the way in which greed is conceptualized differs across several scales, the correlations between the scales is high (see Table 7.2). PCA on each scale individually revealed that both DGS instruments (as well as the 3-item DGS) are unidimensional. The scales by Mussel et al. (2015) and Veselka et al. (2014) give a two-dimensional solution. Conceptually, these scales are most different from the DGS instruments, as they focused more on the negative side of greed. Mussel et al.'s scale demonstrates that the insatiable desire for more and the negative consequences for others are not the same, as this scale had two factors with one corresponding to acquisition and the second to the negative consequences for others. Although Veselka et al. also included the consequences for others in their definition, the items were more focused on acquisition than on the consequences for others. Nevertheless, this scale also had a solution with two factors. The first factor included items that were more focused on acquisition, whereas the second factor included only one item, namely the extent to which charity was important. This was also the item that was most focused on the consequences for others. Again, this demonstrates that acquisition and possible negative consequences for others seem two different things.

**Table 7.1.** Items of the different instruments to measure individual differences in greed (N = 300).

| | | | Separate | | Combined |
|---|---|---|---|---|---|
| | Descriptives | | Factor | | |
| | *M* | *SD* | 1 | 2 | 1 |
| **Dispositional Greed Scale (Chapter 3) – 7-item version** | | | | | |
| 1. I always want more. | 2.51 | 1.12 | .83 | | .69 |
| 2. Actually, I'm kind of greedy. | 2.26 | 1.11 | .77 | | .42 |
| 3. One can never have too much money. | 3.02 | 1.23 | .67 | | .37 |
| 4. As soon as I have acquired something I start to think about the next thing I want. | 2.56 | 1.15 | .81 | | .57 |
| 5. It doesn't matter how much I have. I'm never completely satisfied. | 2.23 | 1.09 | .79 | | .68 |
| 6. My life motto is 'more is better'. | 2.24 | 1.02 | .80 | | .65 |
| 7. I can't imagine having too many things. | 2.46 | 1.18 | .69 | | .65 |
| Total | 2.47 | 0.86 | | | |
| Eigenvalue | | | 4.10 | | |
| Explained variance | | | 58.62% | | |
| Cronbach's α | .88 | | | | |
| **Dispositional Greed Scale (Chapter 3) – 3-item version** | | | | | |
| 1. I always want more. | 2.51 | 1.12 | .84 | | |
| 2. Actually, I'm kind of greedy. | 2.26 | 1.11 | .83 | | |
| 3. As soon as I have acquired something I start to think about the next thing I want. | 2.56 | 1.15 | .77 | | |
| Total | 2.44 | 0.96 | | | |
| Eigenvalue | | | 1.99 | | |
| Explained variance | | | 66.47% | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cronbach's α | | | .82 | | | |
| **Dispositional Greed Scale (Krekels & Pandelaere, 2015)** | | | | | | |
| 1. | No matter how much I have of something, I always want more. | 2.30 | 1.07 | .85 | | .81 |
| 2. | One can never have enough. | 2.30 | 1.04 | .81 | | .68 |
| 3. | Even when I am fulfilled, I often seek more. | 2.47 | 1.09 | .80 | | .54 |
| 4. | The pursuit of more and better is an important goal in life for me. | 2.68 | 1.16 | .77 | | .34 |
| 5. | A simple basic life is sufficient for me. (R) | 3.62 | 1.02 | -.64 | | |
| 6. | I am easily satisfied with what I've got. (R) | 3.50 | 0.97 | -.60 | | |
| Total | | 2.43 | 0.79 | | | |
| Eigenvalue | | | | 3.36 | | |
| Explained variance | | | | 55.99% | | |
| Cronbach's $\alpha$ | | | .84 | | | |
| | **Greed Trait Measure (Mussel et al., 2015)** | | | | | |
| 1. | When I think about all the things I have, my first thought is about what I would like to have next. | 2.40 | 1.05 | .71 | | .59 |
| 2. | My actions are strongly focused on material things. | 2.15 | 1.00 | .37 | .57 | .35 |
| 3. | Sometimes I feel a real urge to possess something. | 3.06 | 1.17 | .79 | | |
| 4. | When something is being shared, I try to get as big a share as possible. | 2.23 | 0.98 | | .60 | |
| 5. | In order to get what I want, I can accept the fact that other people may suffer damage. | 2.03 | 0.98 | | .84 | |
| 6. | I get the most fun out of buying myself all sorts of things. | 2.39 | 1.09 | .86 | | .49 |
| 7. | When I play on my own, I sometimes cheat a little. | 2.14 | 1.06 | | .79 | |
| Total | | 2.34 | 0.73 | | | |
| Eigenvalue | | | | 3.47 | 1.01 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Explained variance | | | | 49.53% | 14.42% | |
| Cronbach's α | | .82 | | | | |
| **Virtues and Vices Scale – Greed subscale (Veselka et al., 2014)** | | | | | | |
| 1. | I enjoy being a part of exclusive clubs or groups that are not open to everyone. | 2.41 | 1.14 | .70 | | |
| 2. | I do not enjoy sharing positions of power. | 2.56 | 1.09 | .50 | | |
| 3. | I like to collect expensive things. | 2.11 | 1.05 | .75 | | .36 |
| 4. | At work/school, I keep good ideas to myself so that only I can get credit for them in the long run. | 2.23 | 1.01 | .65 | | |
| 5. | Financially supporting the less fortunate is a priority for me. (R) | 2.86 | 1.08 | | .95 | .42 |
| 6. | I believe that money is essential; friends are replaceable. | 2.05 | 1.07 | .63 | | .45 |
| 7. | Being financially wealthy is my number one goal. | 2.53 | 1.24 | .77 | | .45 |
| 8. | I consider myself successful if I have a job that pays a lot of money. | 3.03 | 1.15 | .61 | | |
| 9. | No matter how much I have, I always want more. | 2.40 | 1.12 | .80 | | .77 |
| 10. | "I want it all" would be a good motto for me. | 2.10 | 1.10 | .83 | | .76 |
| Total | | 2.46 | 7.11 | | | |
| Eigenvalue | | | | 4.40 | 44.00% | 13.65 |
| Explained variance | | | | 1.03 | 10.34% | 45.49% |
| Cronbach's α | | .84 | | | | |

*Note.* The column separate shows the factor loadings on the separate PCA for each of the scales. The column combined shows the factor loadings on the first factor of the PCA including all greed instruments. In the case of multiple factor solutions, entries are factor loadings after OBLIMIN rotation. Loadings lower than .30 are suppressed. For the combined PCA only the first factor is shown. See Appendix 7.1 for the other factors. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on a 5-point Likert-scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The first seven items were selected to form the Dispositional Greed Scale. Reverse-coded items are indicated with (R).

**Table 7.2.** Correlations of the different greed instruments.

| | | 1. | 2. | 3. | 4. | 5. |
|---|---|---|---|---|---|---|
| 1. | Dispositional Greed Scale (Chapter 3) – seven items | - | | | | |
| 2. | Dispositional Greed Scale (Chapter 3) – three items | .93 | - | | | |
| 3. | Dispositional Greed Scale (Krekels & Pandelaere) | .86 | .84 | - | | |
| 4. | Trait Greed Scale | .85 | .83 | .79 | - | |
| 5. | Greed subscale (VAVS) | .85 | .82 | .81 | .83 | - |
| 6. | Overall greed | .96 | .92 | .92 | .92 | .93 |

*Note.* There is overlap between these correlations. The three items of the DGS are also part of the 7-item DGS. Overall greed consists of the items of the DGS in Chapter 3 and the DGS by Krekels & Pandelaere, the Trait Greed scale and the Greed subscale of the VAVS. All correlations are significant at the .001 level.

The last step in investigating the scales was to look at how the four scales perform together. In order to do this, I conducted a PCA on all 30 items. The scree plot suggests a unidimensional solution, but based on the eigenvalues five factors can be retained. However, the first factor is clearly the most important one, as it explains 45.49% of the variance (eigenvalue 13.65). The other four factors (eigenvalues 1.51, 1.29, 1.15, 1.08) explain an additional 16.78% of the variance (see Appendix 7.1 for an overview). The first factor corresponds to the insatiable desire to acquire more, which is the definition of greed based on the prototype analysis in Chapter 2 and the definition that is used by myself and by Krekels and Pandelaere (2015). Inspection of the rotated solution, reveals that 20 of the 30 items of the four scales load on this first factor. These 20 items include all seven items from the DGS presented in the current dissertation, four (out of six) of the items from the DGS by Krekels and Pandelaere, three (out of seven) items from the trait greed scale by Mussel et al. (2015), and six (out of ten) items from the greed subscale by Veselka et al. (2014). Thus, based on this analysis, the items of the DGS developed in this dissertation load best on the general greed factor.

Although this first factor was clearly the most important, there were four other factors that could be retained based on the eigenvalues. If we inspect these factors,

the second factor seems to include items about the (negative) consequences for others. The third factor includes the three reverse-coded items and measures being satisfied and charity. The last two factors, measure money (factor 4) and status or materialism (factor 5). These factors all represent things that people often relate to greed (see Chapter 2), however, they are less central to greed than acquisitiveness and insatiability. Given that the first factor is obviously the most important one, and is more in correspondence with how people define greed, I believe that an instrument to measure greed should focus on this acquisitiveness and insatiability.

In sum, over the last couple of years, four different instruments to measure greed have been developed. But which one should we use? Perhaps unsurprisingly, I recommend the use of the DGS that I constructed in Chapter 3. I believe that a good scale to measure greed should focus on the core experience of greed. This leaves us with the two DGS measures. These two measures are highly alike and perform in a similar manner. However, the items of the DGS presented in this dissertation load slightly better. In addition, the 3-item short version of this scale performs almost equally well, which has benefits for parsimoniousness.

## READRESSING THE QUESTIONS OF THE INTRODUCTION

In the Introduction I raised four important questions about greed that were based on my reading of the literature. I asked what greed is, when people are greedy, who the greedy are, and if greed is good or bad. Now it is time to see what can be learned from this dissertation and how the research presented here helps in answering those questions.

### What is greed?

In the Introduction I talked about the definitional issues with greed. People often seem to disagree on what greed is (Wang & Murnighan, 2011). The prototype analysis in Chapter 2 has shed light on these definitional issues. Greed is the insatiable desire for more of something in combination with never being

satisfied with what one currently has. In the Introduction, I mentioned three issues that people often have when defining greed. I will now discuss the new insights that this dissertation has on each of these issues.

One of the issues with greed was the broadness of the construct; is greed limited to material desires, or can people also be greedy for non-material desires? Saint Paul made the distinction between *philargia,* specific greed for money, and *pleonexia,* a more broadly focused desire to acquire more (Newhauser, 2000). The current dissertation suggests that the latter is the case, greed is a more general desire for more. In Chapter 2 we see that people see greed as broader than just a material desire. As expected, people often described material desires as a central part of greed, however, people also mentioned non-material desires. Other types of desires that were mentioned were power/status, food (gluttony), and sex (lust). Also Chapter 3 corroborates the idea that greed is more than just a desire for money or other things. Greed was not only associated with a desire to acquire material goods, but also with a desire for food, sex, and friends (Study 3.2). Moreover, greed does not only drive unethical behavior in the material domain, but also predicts unethical behavior such as cheating on a partner (Studies 6.1 and 6.3). Thus, although the desire for more money or material goods is indeed the most important part of greed, this does not mean that people cannot be greedy for non-material desires.

A second issue discussed was whether greed is an acquisition motivation or a retention motivation. In this dissertation I focused on greed as an acquisition motivation. Although I believe that there are instances in which greed is associated with a retention motivation, I think acquisition motivation plays a larger role. This can also be inferred from the empirical data in Chapters 2 and 3. The greed prototype consists of both acquisition and retention elements, but the acquisition features are more central than retention features such as stinginess and thriftiness (Studies 2.1 and 2.2).

Chapter 3 also provides evidence that greed is more about acquisition than about retention. In Study 3.1 I related dispositional greed to the tightwads-

spendthrifts scale (Rick, Cryder, & Loewenstein, 2008). This scale measures the extent to which people find spending money painful. People that lean more towards the tightwad side of the scale tend to experience high pain of paying, and ideally would spend more money. People on the spendthrift side of the scale experience not enough pain and typically spend more than they ideally would. Dispositional greed is associated with being a spendthrift, rather than with being a tightwad, indicating that for greedy people acquisition is more important than retention. Also Study 4.1 suggests that greedy people are more focused on acquisition than on retention. Greed was associated with more income (which suggests more acquisition motivation), and more expenses (which suggests little retention motivation). Although the results of this dissertation suggest that greedy people are mainly acquisition motivated, previous work by Krekels (2015) suggests that greedy people are also more motivated to retain goods. In that research, greed was related to loss aversion and an endowment effect, indicating that is thus broader than solely acquisition motivation. I believe that acquisition motivation is the most important part of being greedy. However, I do believe that in some cases, greedy people will also be retention motivated. For instance, if one is greedy for money, one should also be motivated to retain the money he or she already has.

The third point I brought up in the Introduction was if greed is an emotion or a motivation. Theoretically, greed looks like an emotion. According to appraisal theory (e.g., Roseman, 1996), emotions are elicited by a specific appraisal pattern, and one could argue that greed is elicited by an appraisal pattern of having a strong desire for something one currently does not have. As emotions help people to deal with the problems they experience (Zeelenberg & Pieters, 2006), for greed this would mean that experiencing greed motivates people to reach their goals. In the current dissertation I focused on dispositional greed. I found that some people are greedier than others. I believe that people scoring high on dispositional greed more often experience greed, and as a result, are more motivated by it. An interesting question that remains is what dispositional greed exactly is. Do dispositional greedy people have a higher base

line of greediness, or does it mean that they become more easily greedy? Although the current dissertation cannot answer this question, I believe that dispositional greedy people might have more or stronger appraisal patterns that elicit greed. In other words, I believe that they more easily, and more often, experience greed.

## When are people greedy?

I just argued that greed cannot only be conceptualized as a motivation, but also as an emotion. Although the research presented in this thesis did not look at the appraisals or cues that elicit greed, it does provide some insight on what these cues or appraisals could be. Greed can be seen as an emotion or motivation that helps people deal with situations in which they want something, but do not yet have it. However, a first important thing to note is that I believe that there are large individual differences in the things people want. Dispositional greed measures a global tendency to be greedy and can apply to material as well as non-material desires (Study 3.2). Nevertheless, I believe that that greedy people can differ in the things they value most (see the data discussed in Chapter 1). For instance, someone who values fashion will likely become greedy in a department store, whereas someone who wants success or status might become very greedy when he is in the race for a new job. However, the thing that all greed experiences have in common, is that people desire something that they currently do not have (or not have enough). One thing that probably elicits greed in many people is money. People can desire money just for the sake of having money, but it also allows them to acquire other things that they desire. Several studies have found that the abundance of money affects people's behavior (Vohs, Mead, & Goode, 2006, 2008). I will elaborate on this effect when I discuss further research directions.

Based on this reasoning, a logical appraisal for greed to occur is that the situation has to be tempting. Tempting situations will elicit more desire and thus more greed. This corresponds with the findings in this dissertation. Study 3.1 revealed that greedy people tend to have lower self-control and Study 6.3 showed that greedy people indeed indicate that they are more easily tempted. Greedy

people found the idea of cheating on their partner with an attractive other or keeping a lost wallet more tempting than people scoring low on greed. Most likely, not only individual differences determine whether people are tempted, but the allurement of the situation will play a role as well. Whether people are tempted to cheat on their partner is not only dependent on their individual differences in greed, but most likely also on the attractiveness (temptation) of the other person. Thus people will experience more situational greed in tempting situations.

A second part of feeling greedy is that people do not yet have the thing that they desire. Situational characteristics that emphasize that one does not have what one wants could emphasize greed. Scarcity cues might make it extra apparent to people that they do not have the thing that they want, and that it will be hard to attain this thing. From an evolutionary perspective, it is often argued that greed is a strategy that is developed to deal with scarce resources (Robertson, 2001). In Chapter 2 people did identify poverty as one of the peripheral features of greed, indicating that also lay people seem to associate the two. Krekels (2015) looked at how scarcity is associated with individual differences in greed, and found that childhood socioeconomic status (SES), but not current SES, influences how greedy people are. Other research found a similar relationship between greed and childhood SES (Poluektova, Efremova, & Breugelmans, 2015). The author proposes that people develop greed as a response to deal with the uncertainty of not knowing if one can secure enough resources. Greedy people might be more susceptible to scarcity primes in general, but also less greedy people might become greedier in the face of scarcity, for example, in a consumer situation. According to commodity theory (Brock, 1968) people desire products that are scarce. And indeed, research has consistently found that scarcity cues increase the perceived value and desirability of products (Lynn, 1991). Thus, scarcity cues might trigger feelings of greed, and the effects that scarcity primes have on desirability might be elevated for people that already have a tendency to be greedy.

Another situation that might emphasize this feeling is seeing others with the thing that we want. Study 3.1 revealed that greed is associated with envy. Envy is the feeling that arises when someone else has something that we desire (Parrott & Smith, 1993). It is likely that greed becomes even stronger when we see others with the thing that we desire. Previous research suggests that in some cases there is indeed an *envy premium*, that is, in some situations people are willing to pay more for the products that they want that are owned by someone else (Van de Ven, Zeelenberg, & Pieters, 2011b). In sum, it is likely that some situations elicit more greed than others. Situations that elicit appraisal patterns of wanting something that one currently does not have will lead to stronger experiences of greed.

## Who are greedy?

The main focus of this dissertation lies on individual differences in greed. So, what does this dissertation tell us about the people that are greedy? Study 3.1 looked at the demographic characteristics that predict greed. The strongest demographic variable predicting greed is age. Younger people tend to be greedier than older people. However, we do not yet know the dynamics of this relationship. It could be that people become less greedy when they age, and value other things in life, such as social relationships. This would be consistent with previous research showing that growing older changes people's priorities (Carstensen, Isaacowitz, & Charles, 1999). Another possibility is that the relationship between age and greed is due to a cohort effect. Nowadays, greed is more accepted than years ago (Oka & Kuijt, 2014). It could be the case that younger people have been exposed to greed-is-good messages more often which increased their greedy tendencies.

Men are often perceived as being greedier than women (Robertson, 2013). In Study 3.1 there is indeed a slight tendency for males to be greedier than females, however, in smaller samples I do not consistently find this pattern. This could be due to the smaller samples that are not able to detect such a small effect. Also other research suggests, that men are indeed greedier than women (Krekels &

Pandelaere, 2015). However, there are also situations imaginable, in which women are typically seen as greedier. It is quite possible that greed manifests itself in different domains for men and women, and as a result, also influences their behavior in different ways. For example, previous research suggests that men desire more sexual partners (Miller & Fishkin, 1997) and status (Eastman, Fredenberger, Campbell, & Calvert, 1997), whereas women desire apparel more than men do (Falk & Campbell, 1997). Thus, although men might on average be greedier than women, this does not mean that this is the case across all domains.

Another interesting question is the relationship between greed and wealth. Until now, this relationship remains unclear. As discussed before, greed is sometimes seen as a coping mechanism to deal with scarcity and resource insecurity (Robertson, 2001; Krekels, 2015). But, maybe even more so, greed is associated with the rich and wealthy (Goldberg, 1994). Although this dissertation did not look at absolute wealth, this dissertation did look at the relationship between greed and income. Study 3.1 looked at the relationship between greed and income in a representative sample, but found no evidence for poor or wealthy people to be greedier. Study 4.1, however, did find that greedy adolescents had more income, at the same time however, they also had less savings and more debts. Research by Van Muijen and Melse (2015) found that the relationship between greed and income is complicated. In a survey with over 120.000 participants they found that across branches, there is no relationship between greed and income for people under 36 and a negative relationship for people older than 35. However, for specific occupations, such as sales managers, they find a positive relationship between greed and income. This suggests that greed can have a positive effect on income, however, there has to be a fit with the occupation. In sales, people often receive variable pay. If people get paid based on their performance, greed might motivate them to perform better and to earn more. However, for other occupations, for example in health care or education, greed might backfire, as greed may not lead to more income and greedy people might be perceived as less nice.

If greed is beneficial in some occupations, but not in others, this raises the question if greedy people differ in the occupations that they have. The financial crisis is often ascribed to the greed of bankers (Zandi, 2008). If people are asked to come up with a prototype of a greedy person they are probably more likely to imagine a CEO or banker than a nurse or teacher. But is this actually true? Recently, Van Muijen and Melse (2015) found that people working in extractive industries, real estate, and banking scored highest on greed, whereas people with occupations in education, research, and healthcare scored lowest. Krekels and Pandelaere (2015) also found that people working in banking and management were greedier than people in other professions. However, it remains unclear if greedy people attracted to branches involving more money or that people working in these types of branches also become greedier over time.

A last interesting question is how people's beliefs affect their greediness. As discussed before, most religious writings condemn greed. From an economic perspective greed is often seen as driving the economy (Williams, 2000). This idea is typically resonated by right-wing parties that argue for the free market, and see the inequalities related to this as inevitable (Bobbio & Cameron, 1996). In Study 3.1 both religious and political ideas were assessed. Surprisingly, there was no significant relationship between religiosity and greed. However, there was a trend for non-religious people to be greedier than religious people. A pattern that is also apparent in others research (Krekels & Pandelaere, 2015). This suggests, that although there may be a link between greed and religiosity, this relationship is likely weak. For political beliefs, there was an effect on greed. People identifying themselves as more right-wing in the political spectrum were greedier than people who identify as left-wing. In sum, there seems to be a relationship between people's beliefs and how greedy they are. However, the causality between people's beliefs is not clear yet. The question remains if people's beliefs influence how greedy they are or if people change their beliefs so they fit with their greedy behavior.

## Is greed good or bad?

In the Introduction I also raised the question if greed is good or bad. But actually, this is a weird question. This is the same as asking if emotions and motivations like anger, regret, or envy are good or bad. All these emotions and motivations are helpful in some situations, and do not help in other situations. Although the experience of these feelings might be aversive, being angry can restore unfairness (Van Doorn, Zeelenberg, & Breugelmans, 2014), regret can help us to make better decisions next time (Zeelenberg & Pieters, 2007), and envy can help us to perform better (Van de Ven, Zeelenberg, & Pieters, 2009). The question if greed is good or bad is thus not that interesting. It is a given that greed exists and what is more interesting and important is to know how it operates and what its consequences are. This gives us insights in when greed can be dysfunctional and how we can prevent greed in those situations.

The idea that greed is not inherently good or bad, but can have positive and negative consequences is supported by laypeople's conceptions of greed. In Chapter 2 people identified people with positive as well as negative consequences. A pattern that is also apparent in the other chapters that empirically show that greed has positive and negative outcomes. Although always being excessively greedy is not good, not being greedy at all is not necessarily better. There are two important components of greed. First, greed is associated with a desire for more, and second, greed is associated with never having enough. It could be argued that this first part of greed motivates people to accomplish more and better things, but that the latter causes problems. For example, in Study 3.5 I related greed to behavior in a resource dilemma. In this study, people around the midpoint of the DGS performed best in the game. People that were too greedy depleted the resources which harmed themselves and others, but people that scored low on greed could have profited more without harming anyone.

I believe that problems arise when people lose balance between the things they want or desire and the things they or others need to be happy. It is this neglect of other important needs or goals that causes the negative consequences of greed.

People compare their current state of affairs with a variety of standards, such as others, the past, and the things that they want or aspire (Michalos, 1985). A negative gap between the current state and these standards leads to lower satisfaction and happiness, whereas a positive gap between the two leads to more satisfaction and happiness. Having aspirations that are hard, or impossible to attain is a serious threat for people's wellbeing (Wilson, 1967). Although it is good to have aspirations, greedy people are likely to have desires that are never going to be met, and that likely would not even make them more satisfied if they were to be met. For example, research suggests that people highly overestimate the relationship between money and income (Aknin, Norton, & Dunn, 2009). Although there is a small positive association between income and happiness, this progress mutes above an annual income of $75.000 (Kahneman & Deaton, 2010). People are thus not very good at predicting how the things they want influence their happiness, and greedy people might be even worse at it.

The data in the current dissertation accord this idea, and find that greedy people seem to maximize wealth, but not necessarily well-being. Greedy people consistently generate more resources in a variety of economic games (Studies, 3.3, 3.4, and 3.5) and generate more income (Study 4.1). This is in line with previous research that has found that greedy people are more productivity oriented (Krekels, 2015). However, they do not seem to be happier. In fact, greedy people have lower self-esteem and lower satisfaction with life (Study 3.1). It seems as if greedy people are less able to enjoy the things they have. Previous research has found that wealthy people are less capable to savor positive emotions and experiences, which in turn leads to lower happiness (Quoidbach, Dunn, Petrides, & Mikolajczak, 2010). Always being focused on the next thing one wants, might have similar effects.

Another explanation for why greedy people are less able to enjoy life might be the misbalance between time spend on their greedy desires and other important life goals. Greedy people are more focused on the pursuit of wealth (Study 5.2), even if they cannot use their acquired resources (Studies 5.1 and 5.3). If greedy

people keep working, even if there is no use for this, this leaves little time for other pleasurable experiences, such as time with friends, family, and hobbies. This would be consistent with previous research that has found that people that value time over money are less happy than people who prioritize money over time (Whillans, Weidman, & Dunn, 2016).

Even though greedy people seem to be more focused on acquiring money, they are worse at retaining this money. Study 4.1 suggests that greedy people are more likely to get into financial trouble. Although greedy people have more income, they also spend it more easily. This confirms earlier suggestions that greed is associated with more financial problems and debt (Lunt & Livingstone, 1991). These financial problems can also negatively impact wellbeing (Brown, Taylor, & Price, 2005).

However, as I mentioned before, I believe that greed itself is not inherently bad. I think that it is excessive greed that is causing these outcomes. Having strong aspirations in itself is not bad, it is rather having aspirations that cannot be accomplished that negatively impact wellbeing (e.g., Stutzer, 2004). Therefore, I believe that more moderate desires for more can also have positive consequences. For example, in Chapter 2 people related greed to ambition. As long as people are greedy for things that are actually attainable, these aspirations can help people to reach these goals (Perrucci & Perrucci, 2014). Moreover, not being greedy seems also not the best way to go. Having too little desire or aspiration is associated with boredom (Csikszentmihalyi, 1990) and less achievement (Zimmerman, Bandura, & Martinez-Pons, 1992). Thus, the key to a happy life seems to be a good balance between wanting more and knowing when it is enough.

I just described the intrapersonal consequences that greed has, and argued that it is important for people to set goals that are motivating, but also reachable. However, most often, if people talk about the consequences of greed, they talk about how greed affects others. From an economic perspective, it is often argued that greed benefits not only the greedy, but society as a whole. It is argued that

the continuous striving for more promotes prosperity and economic development (Greenfeld, 2001). Although this idea is not explicitly tested in this dissertation, Studies 5.1 and 5.3 point in the direction of this productive nature of greed. These studies demonstrated that greedy people work harder and generate more income. Although in these studies, there was no use for this surplus, in real life, there often is. People that work and earn more, pay more taxes, which are used to support weaker members of society (Oka & Kuijt, 2014).

Nonetheless, more often if people talk about the consequences of greed they talk about how it takes place at the expense of others. In these cases there is thus also a misbalance. The negative intrapersonal consequences of greed were due to focusing too much on the thing one wants and forgetting all other things that are important for the individual. The interpersonal adverse consequences of greed are caused by focusing too much on what one wants and forgetting about the things that are important for others. Indeed, Chapter 2 found that greed is often related to having tunnel vision. That is, greedy people are likely blinded by their desire and do not care about the rest anymore. I already mentioned that greedy people take more in resource games, which automatically means that the other players get less (Studies 3.3 and 3.4). In addition, greed is often seen as a cause of the Tragedy of the Commons (Hardin, 1968). This phenomenon is named after medieval herders that let their livestock graze on a common parcel of land, instead of on their own, parcel. From an individual perspective this was rational, however, when all herders did this, it led to overgrazing and the ground becoming infertile. Also, in recent days, this tragedy exists, for example with overfishing (Kraak, 2011) and environmental pollution (Good & Beatty, 2011). The harvesting game in Study 3.5 mimicked this dilemma, and indeed found that greedy individuals were more likely to exhaust resources.

Because greed is often at the expense of others, it is sometimes argued that greed is immoral. Indeed, greedy people find a variety of transgression more acceptable and are more likely to actually engage in unethical behavior (Studies 6.1 and 6.2). One of the explanations for this is the lower self-control that greedy

people typically exhibit (Studies 3.1 and 6.1). Self-control can be seen as a battle between willpower and desire; when desire is stronger than willpower people cannot control themselves (Hoch & Loewenstein, 1991). Greedy people have stronger desires, and as a result are more easily lured into transgressing (Study 6.3). This further proves the idea that the desire associated with greed blinds people for the consequences of their behavior for others.

In sum, the interesting question to ask is not whether greed is good or bad, but when and how greed is good and when and how it is bad. Greed motivates people to attain their goals, but problems arise if their desires conflict with the things they or others actually need. People seem to be best off if they are moderately greedy, compared to excessively greedy or not greedy at all.

## DIRECTIONS FOR FURTHER RESEARCH

Based on the discussion above, there are several interesting directions for further research. I just argued that greed itself is not necessarily bad, but that it is rather not knowing when to stop and be satisfied that leads to the negative consequences of greed. As a consequence, one could argue that the motivation to want more should lead to positive outcomes, whereas never being satisfied would lead to negative outcomes. Wanting more should lead to better outcomes objectively, but never being satisfied would cause people to feel being worse off subjectively. The insatiable part of greed can lead to people being constantly on a hedonic treadmill (Brickman & Campbell, 1971), making them unable to savor the nice feelings of getting what they want, and immediately look for the next thing. It would be interesting to investigate if greedy people are indeed often better off, but if they are more likely to perceive their situation as worse off. It seems, as if greedy people find it hard to find a balance between knowing when to want more and knowing when it is enough.

It would also be interesting to see how greed affects outcomes in other domains. Greed can lead to tunnel vision, and as a result, other goals might be neglected. One obvious consequence of this neglect is that people might maximize their outcomes in one domain, but forget to maximize their outcomes

in other domains. For example, someone who is greedy for money or success might spend a lot of time and effort on work, which leaves less time for other important goals such as family and friends. This could lead to greedy people being better off in one domain, but being unhappy in other domains. In further research it would be interesting to see how greed influences goal attainment in other domains, and how people can be helped to make better decisions that eventually lead to more wellbeing.

Another interesting direction for further research would be to see how greed relates to risk taking. I got inspired to study greed after many newspaper articles claiming that it was greed that led bankers to take reckless and risky decisions resulting in the financial crisis. Yet, in this dissertation I did not find clear evidence for a relationship between greed and risk taking. In Study 3.1 I looked at the relationship between greed and risk taking, but did not find an association between the two. Also in follow-up studies, that are not part of this dissertation, I did not find a clear pattern between greed and risk taking.

Nevertheless, other research did find that greed was associated with more risk taking (Mussel et al., 2015). In this study both state and trait greed were associated with risk taking to maximize outcomes. Further research should address these inconsistencies and look at possible moderators for the relationship between greed and risk taking. It might be that the relationship between greed and risk taking is more complex than is often assumed. It is possible that greedy people's continual striving for more makes them more sensitive to the magnitude of outcomes and less to the associated probabilities (leading to more risk taking). If this is the case, greedy people should be more motivated to take risk in situations were the focus lies on the outcomes ($-bet) instead of on the probability (p-bet) of losing the bet (Lichtenstein & Slovic, 1971). However, it is equally possible that striving for more makes people choose the option that gives the most certain outcome to (temporarily) satiate their needs (leading to more risk aversion). This would result in greedy people having a preference for the p-bet over the $-bet. A potential moderator could be how the gains and losses

are structured. In the case of the bankers, the gains are more personal, whereas the losses are shared. It would be interesting to see if greedy people are more likely to take risk, but only if they take risk with *other people's money* (Luyendijk, 2015).

Another way in which this inattention for other things could play a role is when people have to choose between now and later. The current research suggests that greedy people have lower self-control and are more impulsive. It would be interesting to see how greed influences people's ability to delay gratification (Mischel, 1958, 2014), and to see how this affects their decisions. On the one hand greedy people should be more willing to wait for the big reward, however, it is also likely that they do not think about the consequences for later and are so tempted by the small reward that they fail.

Another interesting venue for further research would be to look at greed in more specific domains. As I argued in this dissertation I believe that greed is a broad construct that is not restricted to one type of desire, but can be felt for everything that one desires. However, in the current dissertation I looked at greed as an acquisition motivation and mostly looked at outcomes in the financial domain. Further research could investigate the link between greed and the other specific sins of excess (lust and gluttony). It would be interesting to see how greed relates to promiscuity and satisfaction with one's romantic relationship. Another interesting line of research would be to investigate if greed relates to caloric intake and obesity, and perhaps relate the DGS to BMI. In addition, it would be nice to see how greed is associated with power, status, and ambition. Especially the link with ambition could shed more light on the potential positive consequences of greed.

Although not everyone will desire the same thing, one thing that is desired by many people is money. Several studies have found that priming people with money affects people's behavior. Research suggests that people that are primed with money are more motivated to attain their goals, prefer to work alone, and are less helpful compared to people that have not been primed with this concept

(Vohs et al., 2006, 2008). In addition, exposure to money makes people endorse free market systems and social inequality (Caruso, Vohs, Baxter, & Waytz, 2013). Although these results might indeed be just the psychological consequences of money, it could also be the case that the concept of money elicits greed, and hence this behavior. If this is the case, money could be a good way to manipulate greed in the future.

It would also be interesting to further explore the link between greed and retention motivation. Krekels (2015) found some first evidence that greedy people might not only be motivated to attain more resources, but also more likely to retain the resources they already have. It would be interesting to investigate in what situations greed is associated with retention and in what situations not. It is likely that greed is not always related to a retention motivation, for example, when one wants to buy a new, expensive car, one is probably not necessarily motivated to retain the old one. However, in the case of money, one cannot acquire more money, without securing the money one already has. It is likely that retention motivation plays a role in situations where people's greed is focused on quantity, whereas it plays a lesser role in situations where people's greed is focused on quality. In addition, it would be interesting to look at greed in collectors or even in compulsive hoarders.

Lastly, I think follow up research should look more at state greed. Manipulating greed is important for two reasons. First, it can help us gain more insights in the antecedents of greed. And second, it makes it possible to make causal claims about greed and its consequences. In this dissertation I focused on dispositional greed, but I believe there is also situational greed. I believe that people that are dispositional greedy more strongly respond to cues or appraisals that lead to greed, but this does not mean, that people scoring low on dispositional greed never experience greed. I think research would benefit a lot if there was a good way to manipulate greed. Over the last couple of years I have done several attempts to elicit greed, however, they were not very successful. I failed several times to elicit greed using recalls. One possible reason for this is that

it is hard for people in hindsight to imagine that they really wanted to have something. Usually, the pleasure of getting what one desires quickly disappears after one has attained it (Bazerman, Tenbrunsel, & Wade-Benzoni, 1998), which might make greed not a good candidate for a recall study. Further research could try to manipulate greed by making them desire something that they currently lack.

## CODA

In this dissertation I tried to gain more insights in the psychology of greed. Greed is an understudied topic, which is partly due to the definitional issues surrounding greed. I attempted to better conceptualize greed and found that greed is the insatiable desire for more of something. Some people are more prone to experience greed than other people. These individual differences affect behavior in a variety of domains. Greed's acquisitive and insatiable nature influences financial, organizational, and moral decision making. Together, these efforts are a first step towards a dearly needed new science of greed.

**Appendix 7.1.** Pattern matrix of the factor analysis on the four greed instruments.

| | | Factor | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| **Dispositional Greed Scale (Chapter 3)** | | | | | | |
| 1. | I always want more. * | .69 | | | | |
| 2. | Actually, I'm kind of greedy. * | .42 | .38 | | | |
| 3. | One can never have too much money. | .37 | | | .34 | .43 |
| 4. | As soon as I have acquired something I start to think about the next thing I want. * | .57 | | | | |
| 5. | It doesn't matter how much I have. I'm never completely satisfied. | .68 | | | | |
| 6. | My life motto is 'more is better'. | .65 | | | | |
| 7. | I can't imagine having too many things. | .65 | | | | |
| **Dispositional Greed Scale (Krekels & Pandelaere, 2015)** | | | | | | |
| 1. | No matter how much I have of something, I always want more. | .81 | | | | |
| 2. | One can never have enough. | .68 | | | | |
| 3. | Even when I am fulfilled, I often seek more. | .54 | | | | |
| 4. | The pursuit of more and better is an important goal in life for me. | .34 | | | | .44 |
| 5. | A simple basic life is sufficient for me. (R) | | | .69 | | |
| 6. | I am easily satisfied with what I've got. (R) | | | .76 | | |
| | **Greed Trait Measure (Mussel et al., 2015)** | | | | | |
| 1. | When I think about all the things I have, my first thought is about what I would like to have next. | .59 | | | | |
| 2. | My actions are strongly focused on material things. | .35 | | | | |
| 3. | Sometimes I feel a real urge to possess something. | | | | -.38 | .49 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4. | When something is being shared, I try to get as big a share as possible. | | .46 | | | |
| 5. | In order to get what I want, I can accept the fact that other people may suffer damage. | | .52 | | .38 | |
| 6. | I get the most fun out of buying myself all sorts of things. | .49 | | | | .33 |
| 7. | When I play on my own, I sometimes cheat a little. | | .77 | | | |
| **Virtues and Vices Scale – Greed subscale (Veselka et al., 2014)** | | | | | | |
| 1. | I enjoy being a part of exclusive clubs or groups that are not open to everyone. | | .45 | | | .57 |
| 2. | I do not enjoy sharing positions of power. | | .63 | | | |
| 3. | I like to collect expensive things. | .36 | | | | .39 |
| 4. | At work/school, I keep good ideas to myself so that only I can get credit for them in the long run. | | .55 | | | |
| 5. | Financially supporting the less fortunate is a priority for me. (R) | .42 | | .62 | -.39 | |
| 6. | I believe that money is essential; friends are replaceable. | .45 | | | .51 | |
| 7. | Being financially wealthy is my number one goal. | .45 | | | | .42 |
| 8. | I consider myself successful if I have a job that pays a lot of money. | | | | | .80 |
| 9. | No matter how much I have, I always want more. | .77 | | | | |
| 10. | "I want it all" would be a good motto for me. | .76 | | | | |
| Eigenvalue | | 13.65 | 1.51 | 1.29 | 1.15 | 1.08 |
| Explained variance | | 45.49% | 5.04% | 4.31% | 3.81% | 3.61% |

*Note.* Entries are factor loadings after OBLIMIN rotation. Loadings lower than .30 are suppressed. Participants are asked to indicate the extent to which they agreed that these items were descriptive of themselves. Responses were measured on a 5-point Likert-scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Items that are included in the 3-item DGS are indicated with an asterisk (*). Reverse-coded items are indicated with (R).

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# SAMENVATTING

Hebzucht is een veelbesproken onderwerp. Het is een populair onderwerp in verhalen zoals 'De Gans en de Gouden Eieren' en 'Koning Midas' en in films zoals 'Wall Street'. Ook in het dagelijks leven zien we hebzucht om ons heen. Zo zijn er grote schandalen zoals Bernie Madoff's Ponzifraude en het Enron schandaal. Tenslotte worden we ook regelmatig in onze onmiddellijke omgeving blootgesteld aan hebzucht. Bijvoorbeeld die collega die altijd klaagt over zijn salaris, een kind dat altijd het grootste cadeautje wil pakken of die vriend die altijd de eerste (en de laatste) snack pakt op een verjaardag.

Hoewel er veel over hebzucht is geschreven door filosofen, economen en godsdienst wetenschappers, is er verrassend weinig empirisch onderzoek. Een van de redenen hiervoor is dat mensen het niet eens lijken te zijn over wat hebzucht is. In dit proefschrift heb ik getracht om meer inzicht te krijgen in wat hebzucht is en wat hebzucht doet.

## Hoofdstuk 2: Het definiëren van hebzucht

Het doel van Hoofdstuk 2 was om inzicht te krijgen in hoe mensen hebzucht definiëren. Ik heb dit middels een prototype analyse onderzocht. Prototype analyse is een handige en gestructureerde manier om meer inzicht te krijgen in de definitie van 'warrige' constructen zoals emoties en andere psychologische constructen.

Ik heb in totaal vijf studies uitgevoerd om het prototype van hebzucht bloot te leggen. Het doel van de eerste twee studies was om te kijken welke kenmerken mensen benoemen als ze aan hebzucht denken en achterhalen welk van deze kenmerken mensen het belangrijkst vinden (welke het meest "centraal" zijn in hebzucht). Het doel van de overige drie studies was om verder te valideren of deze centrale kenmerken inderdaad belangrijker zijn voor het construct hebzucht. Dit werd gedaan door middel van een geheugentaak, een reactietijdtaak en een autobiografische herinneringstaak. Deze studies bevestigden het prototype dat uit de eerste studies naar voren kwam.

De prototype analyse wijst uit dat er twee kernelementen van hebzucht zijn. Hebzucht kenmerkt zich vooral door een verlangen naar meer, in combinatie met ontevredenheid omdat het nooit genoeg is. In andere woorden, hebzucht is een onverzadigbaar verlangen naar meer. Deze resultaten vormden de basis voor de rest van het onderzoek.

## Hoofdstuk 3: Individuele verschillen in hebzucht

Hoewel de meeste mensen van tijd tot tijd wel eens hebzuchtig zijn, zijn sommige mensen over het algemeen meer of vaker hebzuchtig dan anderen. In Hoofdstuk 3 werd een schaal ontwikkeld om deze individuele verschillen in hebzucht te meten, de *Dispositional Greed Scale* (DGS) (of, in het Nederlands, de Dispositionele Hebzucht Schaal).

In de eerste twee studies van Hoofdstuk 3 werd de DGS ontwikkeld en gevalideerd. Op basis van de resultaten van Hoofdstuk 2 werden er eerst een aantal potentiële stellingen bedacht die verder werden onderzocht in deze studies. De uiteindelijke zeven items van de DGS vormen een betrouwbare, temporeel stabiele en valide schaal. Hebzucht hangt samen met gerelateerde constructen zoals maximizatie, eigenbelang, afgunst en materialisme, maar is duidelijk een op zichzelf staand construct.

De overige drie studies werden uitgevoerd om de validiteit van de schaal verder te testen. Een schaal die hebzucht meet zou hebzuchtig gedrag moeten kunnen voorspellen. In drie economische spellen (*dictator game, ultimatum game, harvesting dilemma*) werd gekeken of de DGS hebzuchtig gedrag voorspelde. Zoals verwacht hielden hebzuchtige mensen meer geld voor zichzelf en stelden ze minder eerlijke biedingen voor in onderhandelingen. Ook waren ze bereid om meer bos te kappen (zelfs als dit tot ontbossing zou leiden) als dit meer winst zou opleveren. Mensen die hoog scoorden op de DGS vertoonden dus meer gedrag dat je zou verwachten bij hebzuchtige mensen. Tezamen laten deze studies zien dat er stabiele verschillen zijn in hoe hebzuchtig mensen zijn, dat deze verschillen goed te meten zijn en dat deze verschillen gedrag kunnen voorspellen.

## Hoofdstuk 4: Hebzucht en financieel gedrag

Hoofdstuk 4 onderzocht een van de mogelijke gedragsconsequenties van hebzucht. Hebzucht wordt vaak gezien als een belangrijk motief voor financieel gedrag. Aan de ene kant wordt het gezien als een belangrijke drijfveer voor economische groei en welvaart, maar aan de andere kant wordt het ook gezien als een mogelijke oorzaak van financiële problemen zoals schulden.

Doormiddel van een grote vragenlijststudie met bijna 4000 adolescenten (middelbare scholieren in de leeftijd van 11 tot 19) werd gekeken hoe hebzucht samenhangt met financiële keuzes. Hebzuchtige adolescenten hadden gemiddeld gezien meer inkomsten, maar hadden ook meer uitgaven, spaarden minder en hadden meer schulden. Deze studie laat dus zien dat hebzucht zowel positieve als negatieve consequenties kan hebben voor financieel gedrag.

## Hoofdstuk 5: Hebzucht, werk en oververdienen

Hoofdstuk 5 onderzocht verder hoe hebzucht het genereren van inkomen bevordert. In Hoofdstuk 4 liet ik zien dat hebzuchtige adolescenten meer inkomen per maand hebben. In Hoofdstuk 5 werd er gekeken hoe hebzucht het verwerven van goederen motiveert. Meer specifiek werd er gekeken of hebzucht leidt tot oververdienen (meer verdienenen dan men kan consumeren).

In de eerste studie werd gevonden dat hebzuchtige mensen inderdaad meer oververdienen dan mensen die minder hebzuchtig zijn. Hebzuchtige mensen werkten zo hard dat ze niet alle verdiende goederen (chocolaatjes) konden consumeren. Uit de tweede studie bleek dat hebzuchtige mensen oververdienen omdat ze verdienen zo aantrekkelijk vinden, niet omdat ze werken leuker vinden.

De derde studie vond opnieuw dat hebzuchtige mensen meer oververdienen. Deze studie liet ook zien dat dit effect blijft bestaan als mensen vier weken later terug komen en dezelfde taak nog eens uitvoeren. Dit is een belangrijk resultaat, omdat het laat zien dat de effecten niet kunnen worden verklaard doordat mensen de taak niet snappen.

## Hoofdstuk 6: Hebzucht en immoreel gedrag

Hebzucht wordt vaak gekoppeld aan onethisch en immoreel gedrag, zoals stelen en fraude. In Hoofdstuk 6 werd onderzocht hoe ver hebzuchtige mensen bereid zijn te gaan om te krijgen wat ze willen. Met andere woorden, zijn hebzuchtige mensen bereid om zich onethisch te gedragen om te krijgen wat ze verlangen? Uit de eerste studie bleek dat hebzuchtige mensen een grote variëteit aan onethische gedragingen meer acceptabel vonden. Daarnaast gaven hebzuchtige mensen aan zich ook daadwerkelijk hebzuchtiger te gedragen.

In de tweede studie werd, door middel van een corruptiespel, gekeken of hebzucht ook daadwerkelijk immoreel gedrag voorspelde. Hebzuchtige mensen accepteerden vaker een steekpenning en vaker een hoge steekpenning dan mensen die minder hebzuchtig waren.

In de derde studie werd gekeken of lagere zelfcontrole mogelijk een rol speelt bij de relatie tussen hebzucht en immoreel gedrag. Zelfcontrole wordt vaak gezien als een strijd tussen verlangen en wilskracht. Aangezien hebzucht gekenmerkt wordt door een verhoogd verlangen, zou dit kunnen betekenen dat hebzuchtige mensen eerder immoreel gedrag vertonen omdat ze de voordelen van de immorele gedragingen aantrekkelijker vinden. Dit bleek inderdaad het geval. De voordelen van immoreel gedrag zijn meer verleidelijk voor hebzuchtige mensen.

## Conclusie

In dit proefschrift heb ik geprobeerd om meer inzicht in de psychologie van hebzucht te krijgen. Hebzucht is een weinig bestudeerd onderwerp, wat gedeeltelijk komt door problemen omtrent de definitie. Ik heb geprobeerd een beter beeld te krijgen van wat hebzucht is en vond dat hebzucht een onverzadigbare verlangen naar meer is. Sommige mensen zijn meer hebzuchtig dan anderen. Deze individuele verschillen in hebzucht beïnvloeden gedrag in verschillende domeinen, zoals op het gebied van financiën, werk en moraliteit.

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# CURRICULUM VITAE

Terri Seuntjens werd op 9 april 1988 geboren in Roermond. Na het behalen van haar HAVO diploma behaalde zij haar propedeuse Toegepaste Psychologie aan Fontys Hogescholen Eindhoven. Hierna verhuisde ze naar Tilburg om Psychologie te studeren aan Tilburg University. Hier rondde ze in 2010 succesvol haar bachelor af om vervolgens te starten met de Research Master Social and Behavioral Sciences. In 2012 studeerde zij cum laude af en begon aan haar promotieonderzoek in samenwerking met Stichting Weet Wat Je Besteedt en het Tilburg Institute for Behavioral Economics Research (TIBER). Na het afronden van haar proefschrift 'The Psychology of Greed' werkt zij nu als universitair docent aan Tilburg University.

Terri Seuntjens was born in Roermond on April 9, 1988. After receiving her HAVO diploma she received her propaedeutic diploma in Applied Psychology at Fontys Hogescholen Eindhoven. Subsequently, she moved to Tilburg to study Psychology at Tilburg University. After successfully completing her bachelor, she started with a Research Master Social and Behavioral Sciences. In 2012 she graduated cum laude and started her PhD project in collaboration with Stichting Weet Wat Je Besteedt and the Tilburg Institute for Behavioral Economics Research (TIBER). After completing her dissertation 'The Psychology of Greed' she now works as an assistant professor at Tilburg University.